

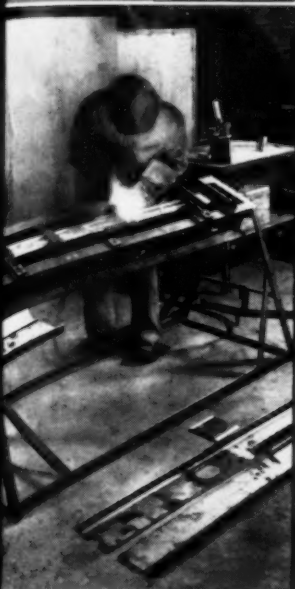
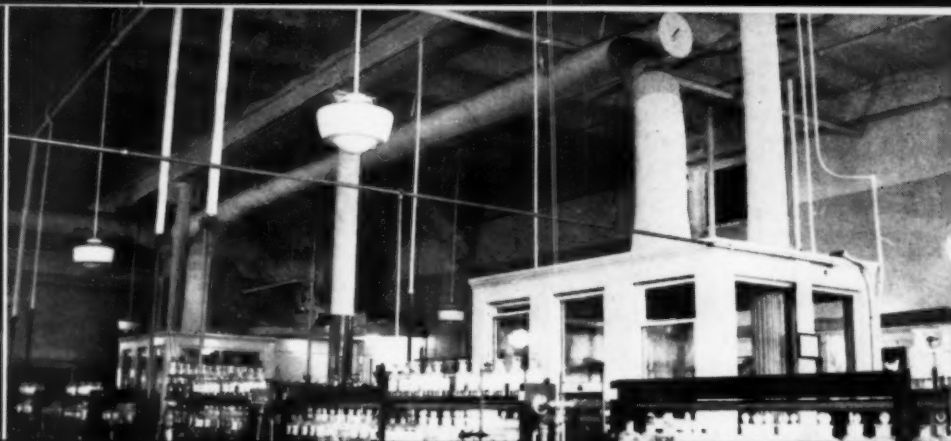
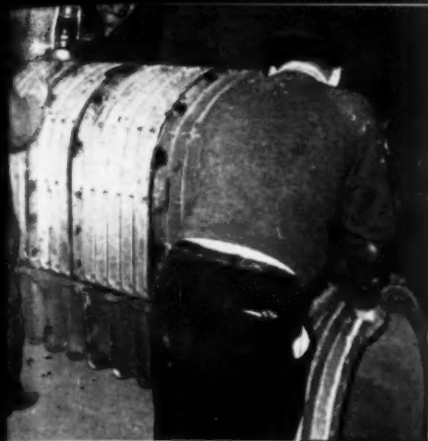
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AMERICAN ARTISAN

RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING -- SHEET METAL CONTRACTING



NOVEMBER, 1946

Get It While They've Got It! (A Collection System)

In Floor Panel—It's Fill That Counts

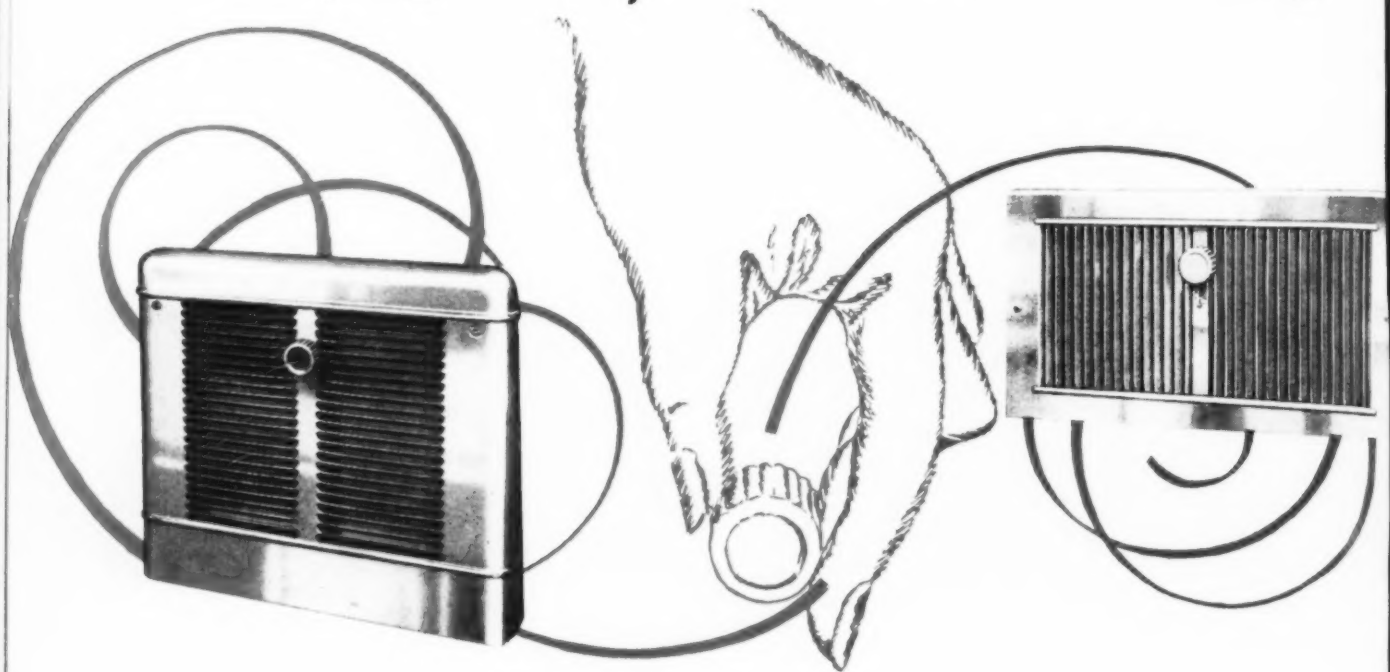
Sheet Metal Forming In Rubber

Page 66

Page 76

Page 88

Only Air Control registers have Knob operated valves!



The smartly styled knob on AIR CONTROL Registers controls the valve with a twist of the wrist. So easy to operate!—So modern in design!—So smart in appearance!

Eliminates the old fashioned operating handles that stick and are hard to open. The smart rounded contour of the knob does not project into the room to catch on clothing, dust cloths, etc.

A favorite everywhere. Remember—"knob operated valves are another AIR CONTROL First"!

See your AIR CONTROL Jobber for information on the complete AIR CONTROL Line—or write for Catalog No. 4

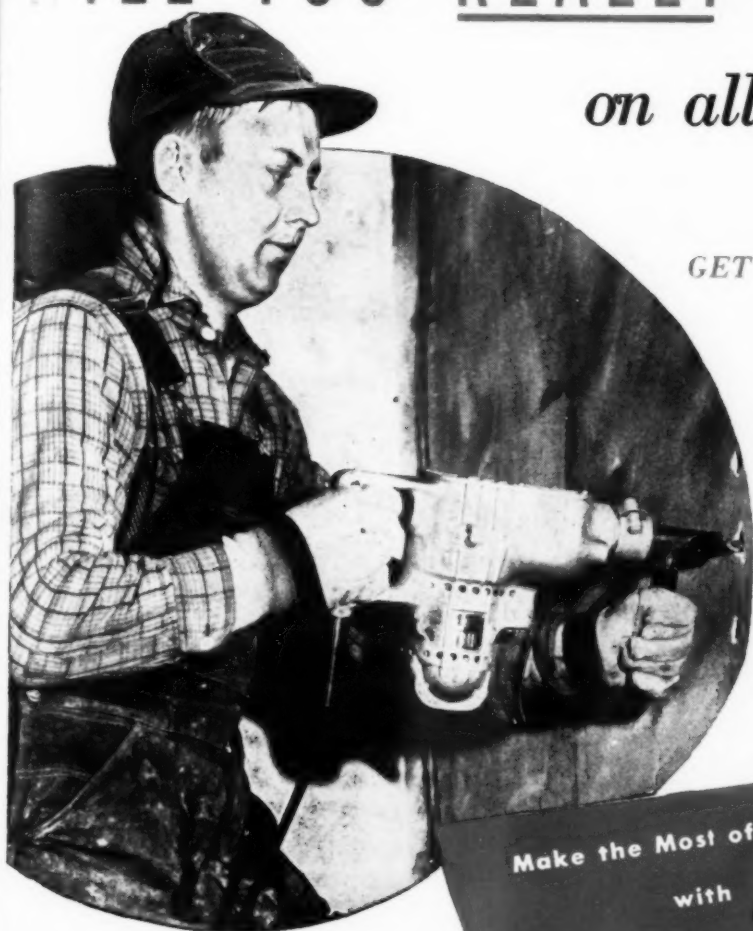
A complete line of Gravity and Air Conditioning Registers—Floor Registers and Faces—Attic and Roof Ventilators—Accessories.

Air Control Products, Inc. also manufactures LEIGH Building Products.

Air Control Products, Inc.
Coopersville Michigan

WILL YOU REALLY MAKE MONEY

on all those jobs ahead?



GETTING YOUR SHARE of tomorrow's contracts is not going to be your major problem in the days ahead. The big problem—what with manpower and material shortages, increased costs and production delays—will be to actually come out of a job with a profit. One thing that can help achieve this is to increase the efficiency of your methods—to get the work done faster and cut job time costs.

Make the Most of Your Manpower
with **Thor**

**PORTABLE ELECTRIC
TOOLS**

A powerful Thor-Nado Electric Hammer does star-drilling, brick and concrete breaking, channelling, chipping and dozens of other hole-opening jobs in walls and ceilings to speed on-the-job installations.

Both in the shop and out on the job, your men can save hours with Thor Portable Electric Tools. Drilling, hole-making in walls and ceilings, metal cutting, screwdriving, sawing and scores of other jobs are done up to 10 times faster than by tiring hand methods. Small and light—with far more power per pound than ordinary electric tools—Thor tools get into the tightest corners to speed the work and lower costs. For practical information on the many time-saving uses of these tools, call your nearby Thor Electric Tool Distributor.

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. Jackson Boulevard, Chicago 6, Illinois

Birmingham	Boston	Buffalo	Cleveland	Detroit	Los Angeles	Milwaukee	New York	Philadelphia
Pittsburgh	St. Louis	Salt Lake City		San Francisco		Toronto, Canada		London, England

Thor

PORTABLE POWER

TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

AMERICAN

with which are merged
FURNACES
SHEET METALS
Warm-Air Heating

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

ARTISAN

In This Issue

J. D. Wilder, Editor

J. J. McCullough, Associate Editor A. A. Kennedy, Assistant Editor

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Member of Audit Bureau of Circulations—Member Associated Business Papers, Inc.

Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago (2), Ill., U. S. A. Copyright 1946 by Keeney Publishing Company. Publisher—Frank P. Keeney; Manager—Chas. E. Price. Advertising staff: Wallace J. Osborn, New York City, Telephone—Murray Hill 9-8293; J. D. Thomas, Chicago, Telephone—State 6916; George C. Cutler, Chicago, Telephone—State 6916; Robert A. Jack, Cleveland, Telephone—Yellowstone 1540; R. P. Wettstein, Los Angeles, Telephone—Tucker 2779.

Yearly Subscription Price—U. S. and possessions, Canada, Mexico, South America, Central America, \$2.00; Foreign, \$4.00. Single copies, U. S. and possessions, \$.25. Back numbers, \$.50. January, 1946, Directory issue, \$1.00 per copy. Entered as second-class matter, July 29, 1932, at the post office at Chicago, Illinois, under the act of March 3, 1879.

As so often happens in new developments—panel heating (note we do not call this radiant heating) sort of sneaked in on the coattails of the war housing program.

For the war—to save time and materials and cost—America began to build basementless houses with slab floors. In the northern states this basementless-slab floor house meant a cold floor.

So it was logical that heating the slab to warm it and using the warm slab to heat the house just sort of came along together.

The first slabs were laid right on the ground—and it didn't make much difference what kind of ground. It wasn't long before complaints indicated that: (1) the slab was not releasing into the house the amount of heat calculated; (2) too much heat was being lost from the slab into the ground beneath and to the air outside the foundation.

It took only a little investigation to show that this loss was approaching 40 per cent of the heat theoretically put into the slab. A heated slab laid directly on wet clay, for instance, lost almost half its heat.

Some engineers stated (and some still profess to believe) that heat passing from the slab into the earth beneath is "just being put into storage and comes back out to heat the slab and the house later"—but practical tests seem to refute this.

The popular idea today is to insulate the slab to keep the heat from getting into the ground. The article on page 76 discusses this problem in detail.

Founded 1880

NOVEMBER, 1946

Volume 115, No. 11

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The advertisement features a large, diagonal banner with a serrated edge, set against a background of corrugated metal. The banner displays various asbestos products with labels: 'SAL-MO ASBESTOS MILLBOARD', 'SAL-MO No. 77 ASBESTOS DUCTBOARD', 'SAL-MO AIRCELL PAPER', 'SAL-MO ASBESTOS PAPERS', 'SAL-MO PIPE COVERINGS', and 'SAL-MO ASBESTOS PIPE JOINT TAPE'. A circular logo for 'SALL MOUNTAIN COMPANY' is positioned in the upper right, featuring a mountain peak and the word 'Asbestos' in a stylized script. Below the logo, the words 'UTILITY SERVICE ECONOMY' are printed. A block of text on the left side of the banner provides a history of the company's quality and production growth. At the bottom, the company name 'SALL MOUNTAIN COMPANY' is prominently displayed, followed by its address in Chicago.

*F*or well over half a century the trade name SAL-MO has stood for quality. Today the latest in new equipment combined with methods developed exclusively by SAL-MO, means the finest in Asbestos Products. The popularity of SAL-MO Products has called for a constant increase in production. Today we are in a position to serve you promptly. Send your next order to SAL-MO.

Your inquiries are invited

SALL MOUNTAIN COMPANY
ANDOVER 2414 · 176 WEST ADAMS ST. · CHICAGO 3, ILL.

The Editor's NOTE BOOK

Swan Song of A. P. Kratz

Professor A. P. Kratz, formerly of the University of Illinois, may not like this, but his letter which follows is so typical of A. P.'s sly humor that the editors cannot resist publishing most of his letter. We wrote A. P. that many AA readers will be interested in knowing: (1) that he has retired and (2) what he plans to do now. We hoped he would give us one of his pithy summaries of a full and useful life—his reply exceeds our expectations. A. P. writes:

"I would like to paint you a romantic picture of science on the mourners' bench bemoaning its sacrifice in the loss of a great life devoted to the cause. However, I am sorry to disappoint you for I am under no illusions on this subject. With me science was a business, at which I worked conscientiously with some measure of success, but to which I did not sell my soul, or make it a religion. In other words, I did not consider myself as God's gift to science and literature.

"My official record shows 37 years and 8 months service to the University. Of this, for about 29 years I was connected with the Warm Air Furnace Heating investigation. This is longer than the duration of the contract with the National Warm Air Heating and Air Conditioning Association, because I spent about a year before the signing of the contract in getting the original furnace plant in operation. During this period of years I became author or co-author of 36 Engineering Experiment Station bulletins and 79 miscellaneous technical papers. These are not all on warm-air furnace heating, because I either participated in or directed a number of other investigations, a few of which were connected with gas producers, power boilers, studies of explosive mixtures related to internal combustion engines, ventilation of the Hol-

Preferred
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PROFIT-WISE

Dealers...

G-A
FURNACE
SENTRY



You'll like the Gleason-Avery Furnace Sentry Package because it offers three important sales advantages:

1. Easy to sell—dependable accuracy, convenient operation, smart styling make a real hit with customers.
2. Simple to install—Unit Package comes complete with thermostat, damper motor (mountable in any position) all needed accessories, ready for installing in hand-fired domestic heating systems. No wasted time fussing with complicated gadgets—can be installed quickly, easily.
3. Easy to maintain—no costly service calls—Damper Motor with exclusive G-A Straight Line Control and Spring Return prevents overheating, eliminates sprockets and rotating arms, assures trouble-free service.

Direct orders accepted when accompanied by your wholesaler's name.

Approved by Anthracite Industries Laboratory

Gleason-Avery, INC.
AUBURN, N. Y.

A RELIABLE NAME IN TEMPERATURE CONTROLS

The Editor's NOTE BOOK

land Tunnel, studies of room heating with radiators and convectors, and an investigation of steam and hot-water heating. A large portion of the time I was closely associated with President Emeritus A. C. Willard and his assistant.

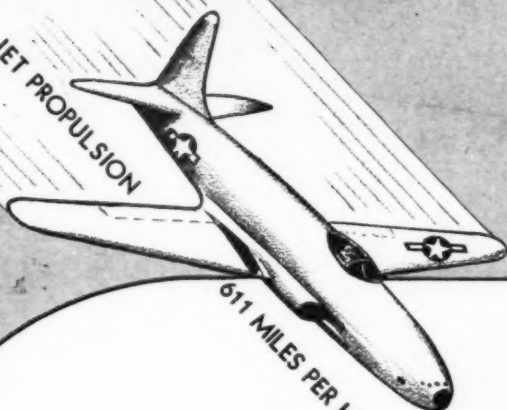
"As far as the future is concerned I have no definite plans. I expect to do whatever each day brings forth, and so far each day has brought forth plenty. Any mechanical yearnings are adequately provided for by upkeep around the house. The yard provides an outlet for gardening and communing with nature. The golf course takes care of a large portion of the year. I have gotten my score down to about 92, and if I live to be 80 maybe I can get it down to where my age is also symbolic of the score. For about 15 years I have played first violin in an amateur string quartet and now hope to have time to do some real practicing so that we can play for our own amusement rather than amazement. I have no plans for traveling. I have had enough of it, but if I take a notion to go somewhere I expect to do so. The same is true for writing. After a life spent at this occupation, or indoor sport, writing is no treat for me. All in all, with these things, and with my propensity for reading, which takes a decided slant toward "who dunits," I doubt whether I shall ever have to cry on anyone's shoulder to get him to amuse me. So you see, since my retirement was entirely voluntary, I am looking forward to a perfectly reprehensible life of loafing and doing as I please."

Editor's Note: If the above doesn't sound like A. P. Kratz, nothing he ever wrote or will write can. His home address, now he has retired, is 1003 Douglas St., Urbana, Ill. We will bet A. P. will be glad to hear from his old fellows in crime.

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JET PROPULSION



611 MILES PER HOUR

P R O D U C T I O N

Miracles

CAN'T KEEP PACE WITH DEMAND!

YES, the Syncromatic organization has literally performed miracles with its production schedules even in the face of serious material shortages which have time and again threatened to cut off production completely. Now that steel is assured us we cannot immediately meet the enormous demand. We can assure you, however, that everything within the realm of human energies is being done to get your Syncromatic furnaces to you.

We ask your indulgence and cooperation.

SYNCHROMATIC

WATERTOWN, WISCONSIN



Beauty, Performance, Economy, Safety, Satisfaction

The Editor's NOTE BOOK

Saw Dust Burner

American Artisan:

Sometime ago we saw an advertisement for a saw dust burner that could be used to heat a building with a steam boiler. Can you give us names of any manufacturers of saw dust burners or sawdust burning boilers?

J. P. W., Penna.

Dear Sir:

We believe it is possible to buy a furnace to burn sawdust from McPherson Furnace & Supply Co., 1805 N. E. Second Ave., Portland 12, Oregon, if the furnace required is of large size. We do not know who manufactures small-size sawdust burning furnaces.

We do not have any list of manufacturers of sawdust burning boilers.

If you will write to the Engineering Experiment Station, Oregon State College, Corvallis, Oregon, and ask for a copy of Bulletin Series No. 15, entitled "Rating and Care of Domestic Sawdust Burners" you will find quite an interesting discussion of various heaters used to burn sawdust. In writing for this bulletin, you might also ask the experiment station to list any manufacturers of these sawdust burners which they have on record.

New Employers Union

Allen W. Rucker, veteran of World War I and Gold Star father of World War II, has organized the TOOL OWNERS UNION to restore equal bargaining rights to the 50 million owners of the tools of production and distribution whose savings and investments make our American standard of living possible.

Members are men and women who have a conviction that the profit-and-loss system within the limits of the Constitution is worth preserving. Through even-



Sampsel DAMPER CONTROL

Almost 9,000,000 homes are prospects for this automatic heat . . . you can sell them Sampsel Damper Controls for healthful comfort—to save money and fuel. Sturdy, rugged construction insures years of dependable performance. Heavy duty transformer built into motor housing. Easy installation. See your jobber for details or write for catalog showing complete Sampsel line . . . Sampsel Time Control, Inc., Spring Valley, Ill.

Damper Control Package Units are available with or without Warm Air Limit Control and choice of Standard or Day-Night Clock Thermostat. Each kit includes all accessories needed for easy installation.



Sampsel

See our exhibit at the 7th International Heating & Ventilating Exposition, Lakeside Hall, Cleveland, Ohio, January 27-31, 1947.

The Editor's NOTE BOOK

tual local organization, the union of millions of tool owners who have invested their savings in the world's most efficient production system will assert the point of view of ownership to Congress and elected administrative officials. The Union is non-partisan. It seeks merely the redress of inequalities in the law so that owners of property invested in production may not be deprived of their property or its earnings by force or arbitrary decrees of any person or group at any time or place.

Information about the TOOL OWNERS UNION may be obtained by writing Allen W. Rucker, President, 1802 Massachusetts Avenue, Lexington 73, Mass.

Right in the Groove

Said President A. C. Mantel of the Sheet Metal Contractors Ass'n of Wisconsin in his 1946 convention message—

"Your association seeks to acquire a better understanding of our difficulties, advance constructive ideas, and promote sound, ethical business conduct."

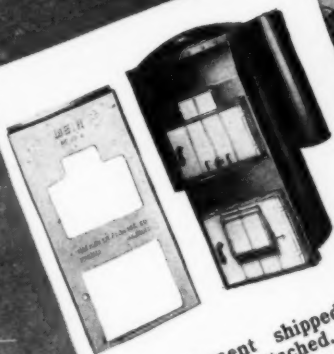
"Our social order is undergoing a drastic change. The economic and industrial set-up is being revolutionized. The American free enterprise system is at stake. Pressure groups aim to substitute a controlled economy and to socialize business and industry. The real social struggle going on is between private ownership and state socialism. Shades of this kind of socialism range all the way from the totalitarianism of communism to a modified type of state ownership and control."

All of the above and many other problems can better be met and adjusted by constructive action by a strong Organization and by collaboration with our National Association and its Affiliates."

How true last February and how pertinent this month.



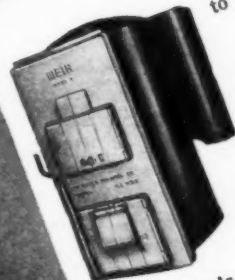
**DRUM, POUCH
and
DOOR SEATS
*All One Piece!***



1 Element shipped with doors attached. Doors and seats are surface ground for perfect fit. Leak-proof steel element.



2 Pressed steel "front" slides snugly over pouch. . . . is not exposed to fire. Casing hooks tightly to front, excluding dirt.



3 Here's the assembled "U" Series. It has smart, sales-building appearance and finer performance to match.

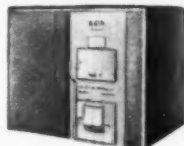
Sell

THIS MAJOR IMPROVEMENT IN FURNACE DESIGN AND CONSTRUCTION! WEIR "U" SERIES STEEL FURNACE WITH *Integral Heating Element!**

- New and modern — streamlined appearance and performance. The greatest improvement since Meyer introduced all-steel riveted-and-welded construction.
- Easier installation — no cumbersome front casting. Permanently, positively leak-proof; never needs re-cementing. Greatly improved cleanliness.
- All the famous lifetime WEIR features including smoke curtain, inside protecting collar, piano-type hinges, waist-high shaker handle, duplex grate, finger-touch door latch and others.

NOW IN FULL PRODUCTION!

Remember, WEIR-MEYER means MODERN HEAT! Send for full information now on the new WEIR "U" Series Furnace with Integral Heating Element!*



WEIR "U" Series Air Conditioner also available. All the advantages of the WEIR "U" Series Furnace plus rectangular casing of modern design for air conditioning.

THE MEYER FURNACE COMPANY

Mfgs. of WEIR & MEYER FURNACES • AIR CONDITIONERS for OIL • GAS • COAL
Offices: Peoria 2, Ill. Factories: Peoria and Peru, Ill.



*Patent applied for

Since 1866

The Editor's NOTE BOOK

Strike Technique

Indicative of the wholehearted manner in which the Japanese "man on the street" has taken to his bosom Western methods and improved on them is the report of the latest technique of Japanese unions, the "shriek protest," an attempt to make as much noise as possible with all possible noise-making devices for a stated period of time. The hope is to mobilize public pressure against the employer whose action provoked the protest.

Wants Bookkeeping System

American Artisan:

Can you recommend a bookkeeping system suitable for a hardware store operating a sheet metal and furnace department and not too well staffed with clerical help or trained accountants?

J. S., Minn.

Gentlemen:

In answer to your inquiry, there is no bookkeeping system which we would recommend for the type of operation you describe. There have been numerous bookkeeping systems offered in the past, but most of these systems are now obsolete and do not produce the type of cost record and tax report which is so necessary today.

The Sheet Metal Contractors' National Association has a committee which is undertaking an investigation of several bookkeeping systems and it is expected that some time this year the association will recommend one system which our industry can adopt.

AMERICAN ARTISAN

Brick Laying Like 60

A newly developed machine for bricklaying lays 20 times as many bricks per day as is now possible with hand labor, reports Brick & Clay Record, Chi-



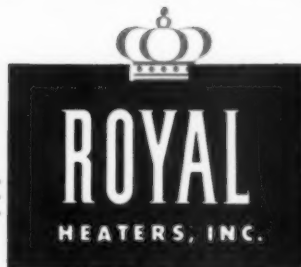
Greater Profits The ROYAL Way

✓ ROYAL Furnaces are easy to install... Slip into place from above the floor. Installers report — two men in a single day have installed eight furnaces in new construction and two in homes already built.

✓ ROYAL magazine advertising is designed to bring customers directly to you.

✓ The ROYAL Furnaces are available for prompt delivery — Greater Profits Now!

Write today for information and prices.



1024 Westminster Ave., Alhambra, Calif. (Dept. A-11)

The Editor's NOTE BOOK

cago. The machine requires a crew of ten men and will lay 100,000 brick in an 8 hour day on long, heavy walls. This average 10,000 brick per man, contrasted with 500 per man in the same period by current hand labor methods.

The machine, which will weigh about 2,000 lbs., moves on a track, back and forth, lifting the brick from a conveyor belt and passing them through an arranging device on the head of an extending boom. The layer head then picks up the brick from the arranging device and sets them in the mortar. A pressure system, operating through valved nozzles,

It's Your Money

There is a phase of the veterans' training program that is not well and good. It is already subject to serious abuses.

The abuses lie in the so-called on-the-job training. The veteran "trains" to become a soda jerk. His employer gets by with paying him a very small wage while he is "training."

A veteran returned to his job as vice president of a bank in a Kentucky town. His salary was \$3,600 a year. He certified that he was in training to be executive vice president, a job that would pay \$6,000 a year, and on this basis he applied for his subsistence allowance.

The Veterans' Administration reports lawyers returning to law practice have claimed and been granted subsistence allowance because they made a showing of being "in training" for a different branch of the law. The number of veterans getting on-the-job training is increasing at a geometric ratio. In some instances it is little more than a racket.

The federal government pays out the money for veterans' subsistence. But the states have sole supervisory authority. It's your money!

If your service costs seem to be increasing out of all proportion



**ELIMINATE
THEM AT
THE START**

WHITE-RODGERS automatic controls cut service costs. This has been proved by manufacturers who have kept accurate records.

One typical manufacturer found that his service costs decreased far more than his original control costs increased. Not only that, but his equipment kept working more dependably, resulting in better-satisfied customers, and a better reputation for his firm.

If your products depend for their accuracy and reliability on temperature or pressure control, equip them with White-Rodgers automatic controls.



WHITE-RODGERS ELECTRIC CO.

ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air Conditioning

The Editor's NOTE BOOK

Barns Made on the Spot

Farm buildings may soon be made from steel welded right on the spot. A Pittsburgh manufacturer has plans for many different types of units to be made available to building supply dealers, welding shops and local contractors.

The University of Wisconsin developed the site-welding program through a grant from the steel manufacturer.

Duct Patterns

American Artisan:

Do you have any books on patterns for elbows and general sheet metal layout work?

A. K., Illinois

Dear Sir:

We published a booklet on patterns covering warm air furnace piping (rectangular and rectangular to round) from the series of articles written for American Artisan by William Neubecker. You can get a copy of this reprint by sending us your check for \$1.00.

Please note that this is principally rectangular pipe work and not round pipe work. We also inclose a book list, including patterns for rectangular and round pipe work. We suggest that you study these book descriptions and if any of the books seem to have the information you require, we shall be glad to fill your order.

American Artisan

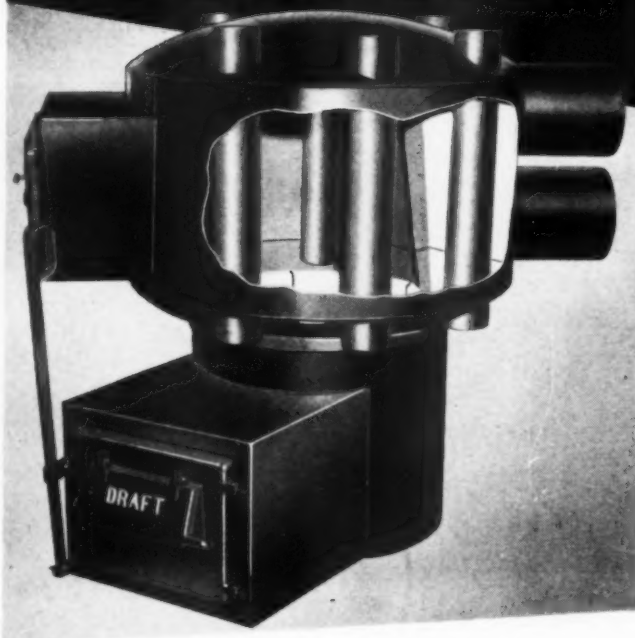
Deficit Financing

Deficit financing consists of two parts: first, creating a deficit by overspending your income and second, making up differences by issuing additional securities (IOU's).

Here are some of the ways in which this policy levies its costs against your present and your future living:

Deficit financing reduces the value of the insurance policy you hold by reducing the pur-

Let's talk Tuberator



WE'VE CUT A HOLE IN A PERFECTLY GOOD FURNACE...

... just to show you what a TUBERATOR looks like on the inside!

Those vertical steel pipes you see placed around the fire chamber are called RADIANT HEATED AIR CONDUCTOR TUBES. They are open at both ends and absorb and transmit a continuous flow of heated air throughout the system... making the heating of distant rooms as easy as those close to the unit.

In the picture above, with the outside casing removed, you can get a good look at TUBERATOR'S arc-welded steel body construction that eliminates dangerous smoke and gas leakage as well as providing a 100% Primary heating surface. Take time to look into a TUBERATOR!

**TUBERATOR heats right,
because it's built right!**

Get the inside facts on TUBERATOR now! Write for new illustrated folder giving complete specifications and all 31 outstanding TUBERATOR features. Address Dept. A-1146.

WHEELING FURNACE CORP.

MARTINS FERRY, OHIO



The Editor's NOTE BOOK

chasing power of the money represents.

Deficit financing goes through your safe-deposit box and reduces the values in it without opening the box.

Deficit financing reduces the value of every savings bank deposit without changing the credits in your bank book.

Deficit financing robs all the elderly who depend on fixed incomes or annuities.

Deficit financing reduces the values of trusts for old and young, for retirement or for education.

Deficit financing in peacetime is a selfish plan to enjoy privileges and immunities in the present, at the expense of our children and our grand-children in the future.

Oil Burner Troubles

A small oil burner manufacturer tells this story of his quest for castings. Old suppliers are much too busy to cast burner bases, and it requires a bribe to get the patterns out of the loft. Then, patterns in hand, he started looking for a foundry that would pour iron for him. Two of them tried, failed and gave up.

Finally the manufacturer took his patterns back to his old foundry, and in a "deal" with the foreman he is getting a few bases through. Besides paying top price for the iron poured, he has to tip the foreman \$10, and each man who works on the job \$1, for every base cast. It makes his castings a little expensive, he explains, but dollars and cents are no bar to getting materials.

Magnet wire, worth 40 cents a pound, is going for as high as \$1.50 when it can be found at all, and motors wound from this wire could hardly be sold for a profit at ceiling prices.



**A
TIMELY
TIP...**

on some mighty profitable business

Never before has the demand for stainless steel equipment been as great as it is today. And never before has there been such a wide open opportunity for sheet metal contractors to firmly establish themselves as stainless steel specialists.

The advantages of being a stainless steel specialist are both plentiful and profitable. You get away from the work and headaches of strictly price competition. As your specialist reputation grows, you will find more and more business *coming* to you. And because of its "quality" nature, stainless steel work should provide a higher margin of profit than any other type of sheet metal fabrication.

Remember that you don't need expensive, special equipment for fabricating Republic ENDURO Stainless Steel. And if you have any questions regarding the proper methods of working or welding stainless steel, you will find complete, informative answers in Republic's two books: "The Fabrication of Republic ENDURO Stainless Steel" and "The Welding of Republic ENDURO Stainless Steel." Both books are FREE to sheet metal contractors. For copies of either or both, write to:

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

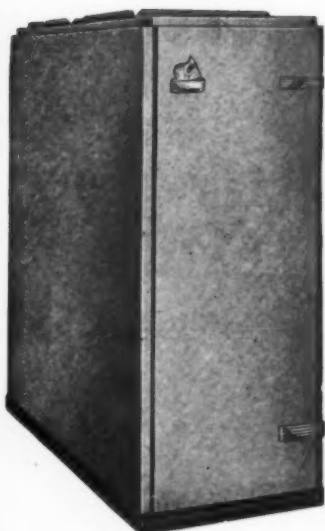
Republic

ENDURO STAINLESS STEEL

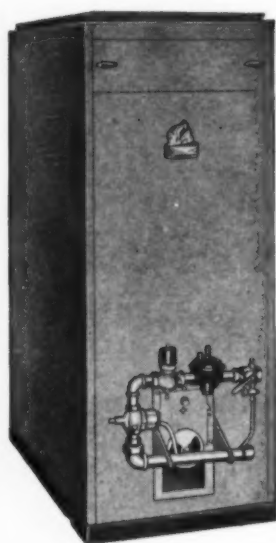
Reg. U. S. Pat. Off.



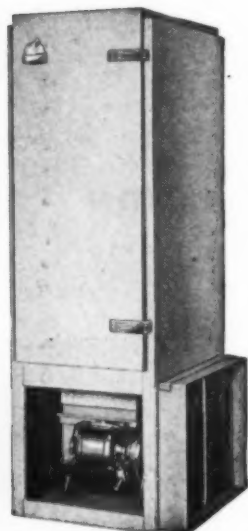
Other Republic Products include Black, Galvanized, Galvalume and Electro Painted Sheets — Tensar Iron Shapes



Series A
Gas-Fired Steel
Air Conditioning Unit



Series G
Gas-Fired, Steel
Gravity Furnace



Series H
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VALUES built into
Luxaire's new line
of Automatic Heating
Equipment make *Luxaire*
Top **in the**
Heating
Market!

Smartly Styled Cabinet — Distinctive Design

Attractive Baked Enamel Color Combination • Durable, Welded Steel Heating Elements • Silent Operating Multi-Port Burner • Efficient Operation—Completely Automatic • Easy to Install—Easy to Service. Everything you need to meet the demands of the heating market—that's Luxaire.



Series 8000
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Air Conditioning Unit



Series 700
Coal-Fired, Steel
Gravity Furnace



Series C
Coal-Fired, Cast
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The Everlasting Symbol
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PRODUCTS FOR THE BUILDING TRADES

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- Copper Nails and Rivets • Copper Ridge Rolls • Copper Eave Troughs
- Copper Conductor Pipe

PARTICULARLY today . . . when so many building materials and construction standards are suspect . . . Hussey Copper, visibly evident on ridge roll, flashings, eave troughs and conductor pipe, stands as a symbol of careful material selection . . . quality construction.

For Hussey Copper has always had the industry's recognition for uniformly high quality, easy workability, and the ageless durability that only pure copper can give.

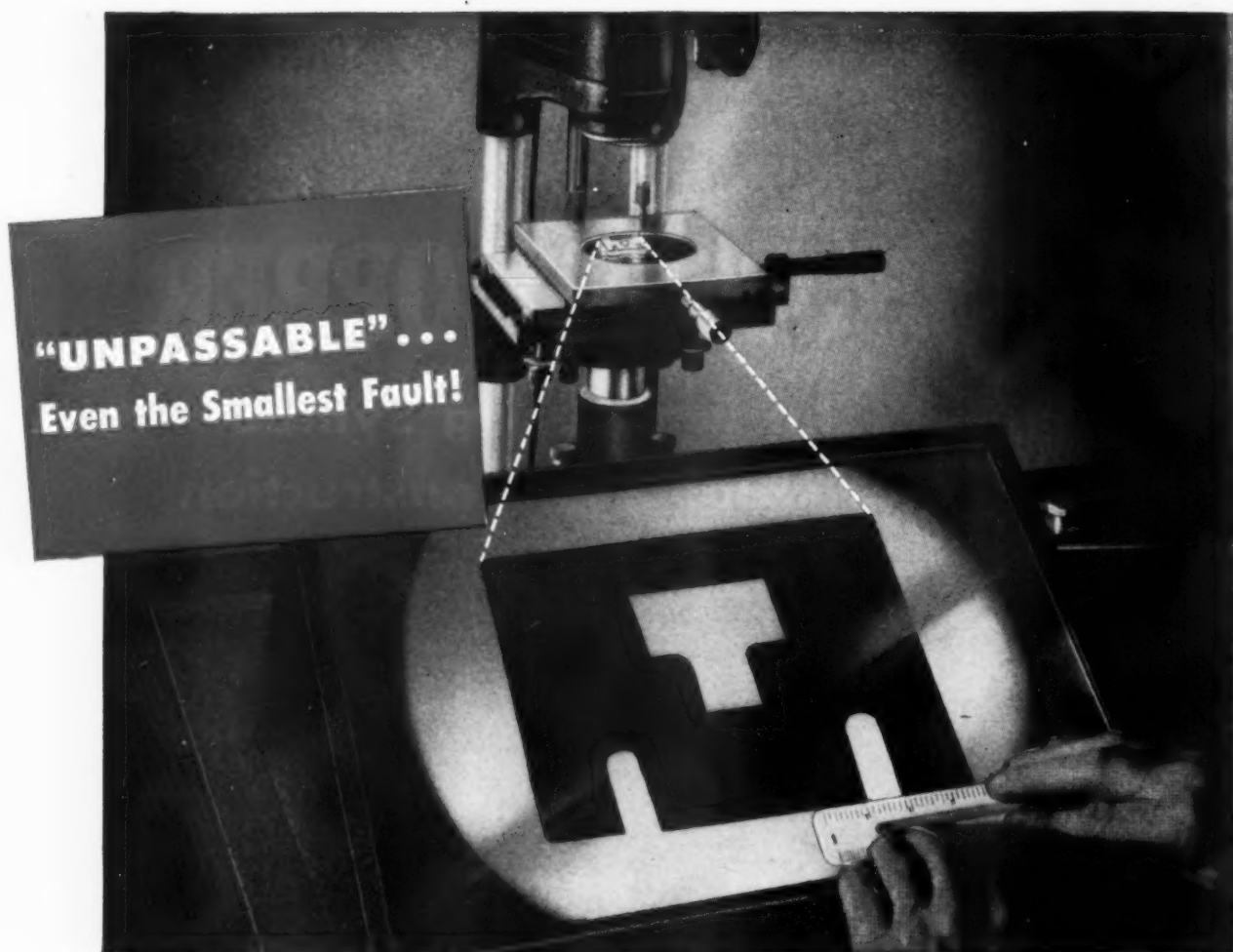
Identify your jobs with the best . . . let your own excellent craftsmanship and Hussey pure Copper and Copper Products symbolize the top quality of your job.

C. G. HUSSEY & COMPANY

(Division of Copper Range Co.)

ROLLING MILLS AND GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA

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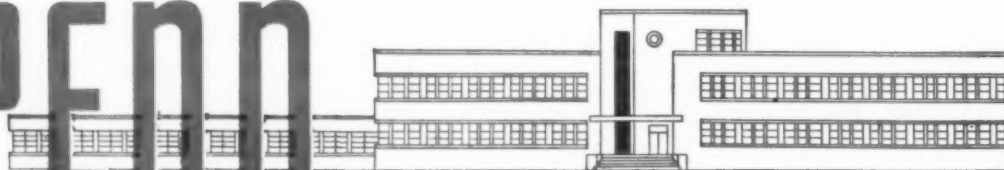
A PENN Quality Control Engineer looks at things with *super-critical* eyes. Even the slightest flaw . . . the smallest imperfection . . . is cause for rejection. Every PENN Control must measure up to rigid specifications. For, all PENN engineers and inspectors know that your business depends on satisfied customers.

Consequently, these experts are relentless in their desire to assure *the best automatic heating controls* you can possibly get. To aid them in this objective, they use precision equipment constantly. For instance, here, a Quality Control Engineer checks the accuracy of small parts used in PENN Controls with

an Optical Projector. This device greatly magnifies the part, thus making it easy to detect possible errors or faulty construction.

With such painstaking inspection and testing, it is only natural for PENN Heating Controls to assure highly satisfactory performance under all normal operating conditions. You'll find *no better controls are built* . . . yet their extra value involves no extra cost. Ask your jobber about PENN Controls for oil burners or coal stokers. There is one for every type of heating system. *Penn Electric Switch Co., Gosben, Ind.* Export Division: 13 E. 40th Street, New York 16, U. S. A. In Canada: Penn Controls, Ltd., Toronto, Ont.

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PETRO HAS EVERYTHING



... FOR MEETING ALL OIL HEATING NEEDS
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Meet every heating requirement? Yes—when you put Petro on the job. Petro supplies a complete line of oil burning equipment that lets you go after all the oil burner business—step up your sales to new highs.

Petro Oil Burners cover a full range for home, commercial and industrial heating... with pres-

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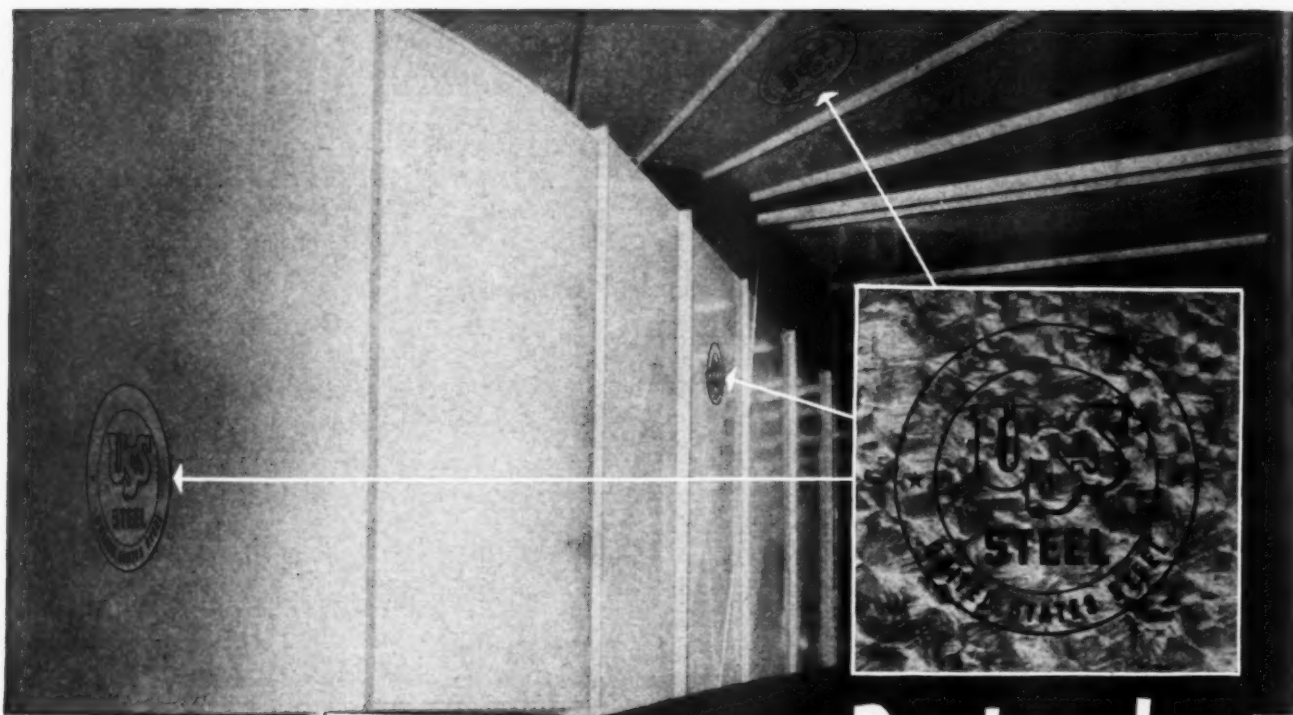
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PETRO FUEL OIL BULK PLANTS, DISTRIBUTION TERMINALS AND FACILITIES IN: BOSTON • PROVIDENCE • STAMFORD
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PETRO

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MAKERS OF GOOD OIL BURNING EQUIPMENT
SINCE 1903



For Long-Lasting Ductwork

U-S-S STEELS FOR SUCCESSFUL SHEET METAL WORKMANSHIP

U-S-S GALVANIZED STEEL for sheet metal structures requiring the added protection of a zinc coating.

U-S-S COPPER STEEL to give twice the atmospheric corrosion resistance of regular steel at little additional cost.

U-S-S DUL-KOTE—A dull-surfaced galvanized sheet and **U-S-S PAINTBOND**—a Bonderized, galvanized sheet, both specially prepared for immediate painting and better paint adherence.

U-S-S HOT-ROLLED AND COLD-ROLLED STEEL to provide the basic advantages of steel, plus maximum economy, in accordance with the needs of each individual job.

U-S-S STAINLESS AND HEAT-RESISTING STEELS to assure high resistance to corrosion and heat, and to reduce weight.

U-S-S VITRENAMEL — Sheets designed especially for porcelain enameling.

U-S-S LOW-ALLOY, HIGH-STRENGTH STEELS to resist corrosion and increase strength-weight ratio.



THIS familiar symbol is the hallmark of quality throughout the metalworking industry. Most jobbers carry and recommend sheets that bear it. But, to be sure that the ductwork your shop turns out gets the extra protection these superior sheets afford, specify them by name when you place an order.

U-S-S Galvanized Steel Sheets are especially processed to stand up under severe atmospheric conditions. A tightly adhering coating of zinc which keeps out deteriorating oxygen and water vapor . . . makes U-S-S Sheets highly resistant to rust and corrosion. And, being uniform in flatness, surface and ductility, you get true bends, tight seams and neat joints . . . even in forming the most difficult angles and shapes. This speeds installation time . . . assures a better looking, longer lasting job.

It will pay you to get in touch with your nearest sheet metal supplier. If he doesn't have just what you want when you inquire, he may be able to get it for you.

U-S-S STEEL SHEETS

CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh and Chicago

COLUMBIA STEEL COMPANY, San Francisco

TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham

United States Steel Supply Company, Chicago, Warehouse Distributors

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UNITED STATES STEEL



THE HUMIDIFIER VALVE WITH
THE INGENIOUS *Snap Action*

A better valve that is being made still better—

We realized that we were biting off a big chew when we started to make humidifier float valves. But, frankly, we didn't know how tough it was to be until we got all the way into it.

As you know, the conventional float valve just couldn't do this vital job right. Plainly, a valve was needed that could (1) cope with the foreign matter, lime and scale that are always present in humidifier pans, (2) seat tight against water pressures up to 150 lbs., (3) have provision for water level adjustment on the job.

To accomplish these things, we designed a snap action valve—a valve that snaps wide open when the float drops $\frac{1}{4}$ -inch, opening up a full stream which flushes out the valve and seat; then closes with the same snap when the water level is restored, seating tight against water pressures up to 150 lbs. The adjustable water level was provided too, and many other refinements that reflect unparalleled experience in the manufacture of water level controls.

The result was a far better valve, but, as we said at the start, there was still room for improvement. We first added a strainer, then changed valve details and float construction. During the war thousands were given severe work-outs in special applications that showed the way to further improvement. Soon this valve will again be available to you—a better valve, and, equally important, a valve that is being made ever better!

THE McDONNELL No. 417

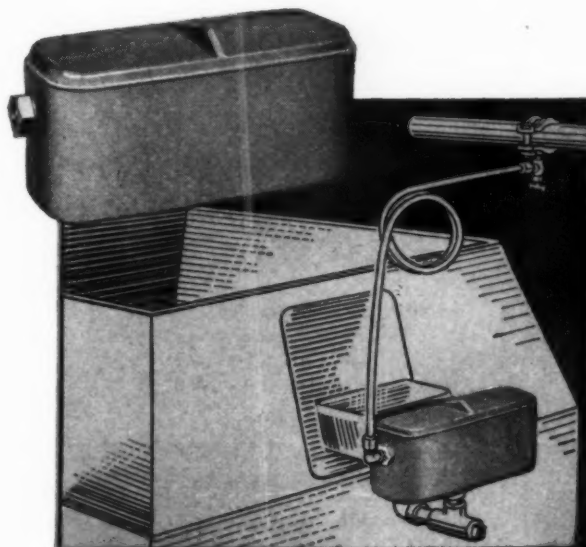
Snap Action Valve is illustrated above. The No. 517, consisting of the No. 417 Valve installed in a die cast float chamber with cover, is shown below. Valves are adaptable to every type of warm air furnace.

McDONNELL & MILLER, Inc.
1318 Wrigley Building, Chicago 11, Illinois

Doing One Thing Well
REG. U. S. PAT. OFF.

McDONNELL

Snap Action FLOAT VALVE





we want an **OIL** furnace

GAS is our fuel



make it a **COAL** job



the customer names the fuel-

The VIKING Line places no limitations on your opportunity to go after and handle every kind of heating and air-conditioning job.

OIL — GAS — COAL. The customer names the fuel — the Viking Contractor-Dealer figures the job with a VIKING unit scientifically engineered to automatically utilize that fuel with greatest efficiency and economy.

A complete line of equipment for every heating, cooling and air-conditioning requirement from one dependable source (see panel) — and the services and cooperation of the VIKING Distributor in your community, whose business it is to help you make money every season of the year; in your own exclusive and protected territory. It all adds up to a splendid proposition for the Contractor-Dealer who connects with VIKING and gets set to make some real money during the next several years.

There is room for more VIKING Franchised Dealers in some markets. If you would like to discuss the details in relation to your own successful future, use the coupon below for prompt action.

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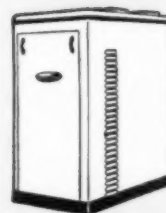
Cleveland 14, Ohio

The Viking Mfg. Corporation
1747 Chester Ave., Cleveland 14, Ohio.

OK., Gentlemen, I want the details.

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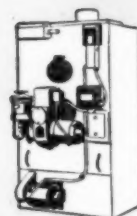
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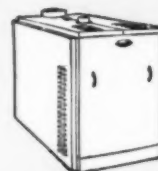
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Furnaces



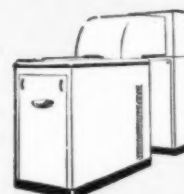
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Year-Round Air
Conditioners



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Domestic Stokers

The VIKING Complete
line of Heating, Cooling and
Year-Round Air Conditioning
Equipment — Fuel-Oil, Gas
or Coal-Fired.

A PARROT TOO, CAN SAY...



CRESCENT TOOL COMPANY, JAMESTOWN, N. Y.

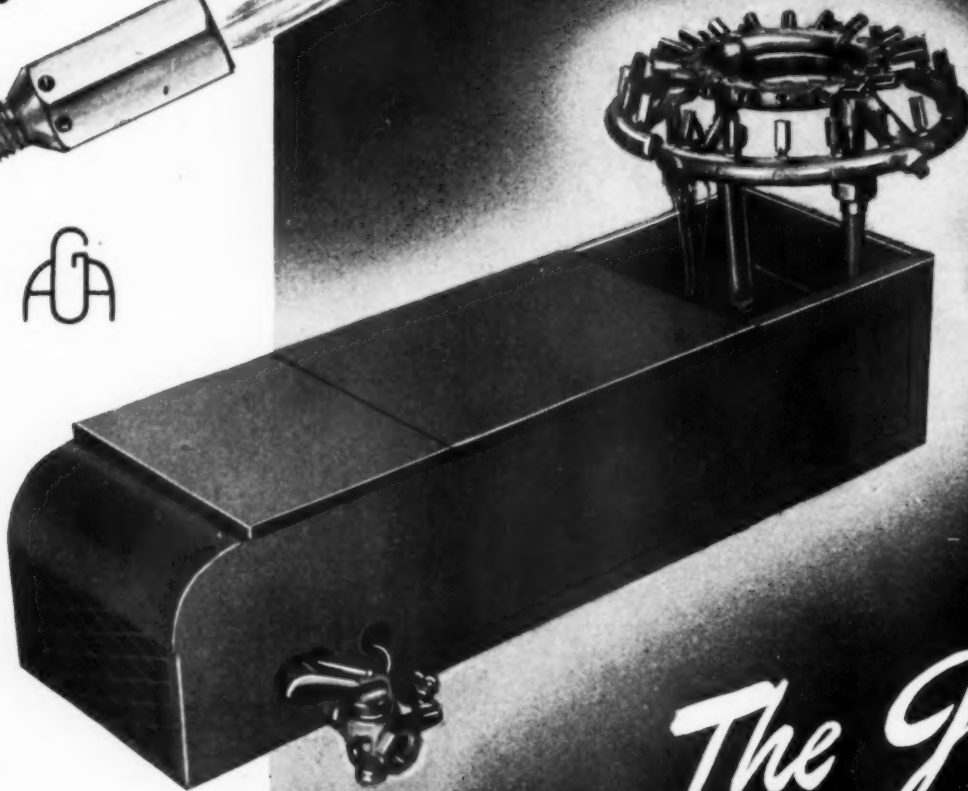
*"CRESCENT"—A Trade Name registered in the United States and foreign countries. Crescent Wrenches are made only by the Crescent Tool Company of Jamestown, New York.

***CRESCENT TOOLS**

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THE *newest* THING
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The Jet

A new ZEPHYR JET type gas burner available now in its modern design. A simple burner to install. The JET is A.G.A. certified, efficient and completely safe. 80,000 to 200,000 B.T.U. capacity for all gases. Arrives complete with all controls and limit switch.

ZEPHYR BURNER COMPANY
Dept. AM-10
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Please send me information of ZEPHYR Conversion Burners. I am interested in being a

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safely
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For all types of automatic heating . . . stokers,
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of simple, dependable Twin Contact Primary Controls.

Built to meet the rigid specifications of the leading
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GAS VALVE

 **PERFEX**
TWIN CONTACT CONTROLS

MANUFACTURERS OF AUTOMATIC CONTROLS BEARING THE TRADE MARK NAMES
OF LEADING PRODUCERS OF AUTOMATIC HEATING SYSTEMS AND APPLIANCES

SHEET METAL WORKERS SAY——

One job like this Sells Six More

"EVERY Wheeling Expanded Metal job you do is a salesman for more," says the proprietor of an up-and-coming shop.

"Take food stores, for instance. They want ventilation...with safety against intruders when the store is closed.

"A Wheeling ExM door guard is the perfect answer in summer. ExM transom and window guards do the same job in winter.

"Store owners like the neat, substantial, sanitary jobs that ExM makes. That's why I say one job sells six more.

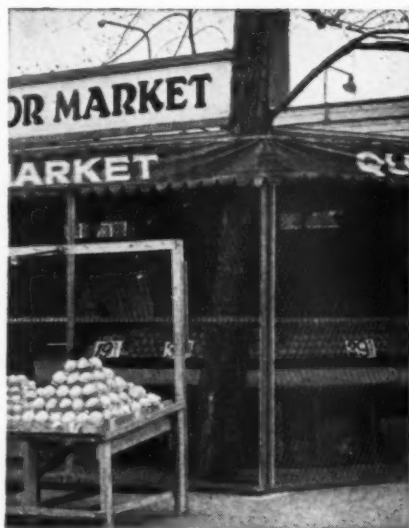
"Inside the store, ExM is the ideal material for vegetable

display racks, bins and shelving, cashier cages and ventilating partitions. Also for heating and ventilating grilles.

"Yet, that's only one class of customers for ExM. Actually almost every home owner and business man can use it.

"Let prospects know about ExM and what can be done with it and you'll find a little effort snowballs up into a lot of new and repeat business."

Note. Send for illustrative literature.



Here's a Wheeling ExM job that ran into a lot of footage (only a small part shows in the picture). It's where everybody can see it. Use such jobs as new business getters by referring to them and attaching nameplates to the job.



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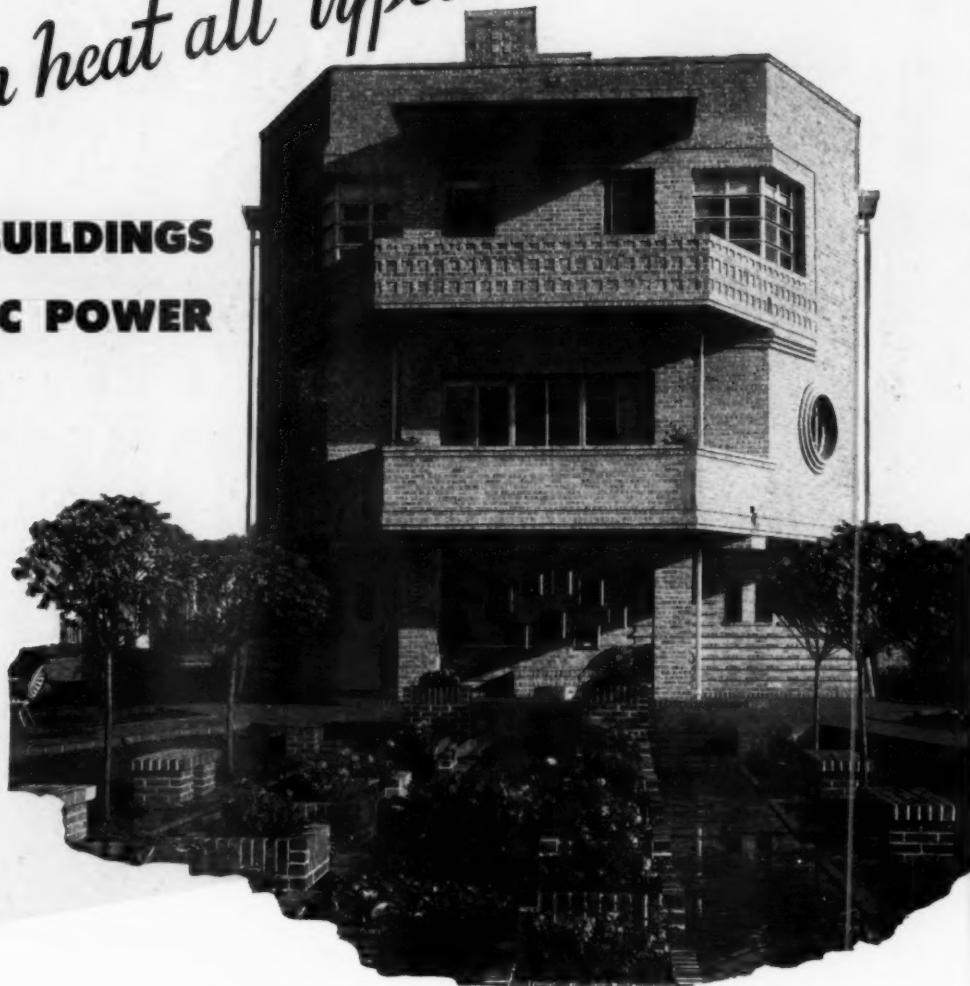
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MINNEAPOLIS
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NEW YORK

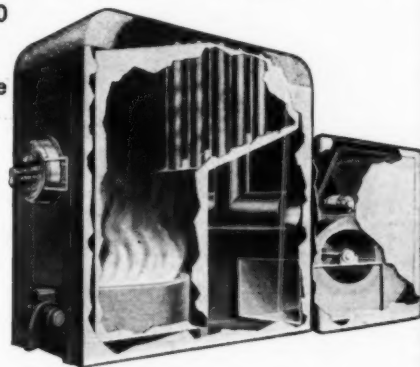
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You can heat all types

**OF BUILDINGS
WITH J & C POWER
HEATERS**



Tomorrow, new apartment dwellings, like the one illustrated, will represent a combination of modern trends in architectural design and age-old settings such as terraces and sunken gardens. The design of J & C Power Heaters makes them ideally suited for heating such buildings. They are engineered in accordance with thoroughly modern heating principles. With a maximum of direct radiation surface, they capture more usable heat from a relative minimum of fuel. One-piece welded construction of best obtainable steel insures a gas-tight unit. • Smooth, forced air system with ample humidity control. Compact design, trim lines. Today, J & C Power Heaters from 160,000 to 2,800,000 B.T.U. output are heating many types of buildings—homes, schools, churches, stores, and apartment dwellings. Oil, gas, or coal fired—suitable for butane firing. Dealers—assure yourself of the BIG furnace installations in 1947 by contacting your distributor and getting the facts about the complete line of J & C Power Heaters.



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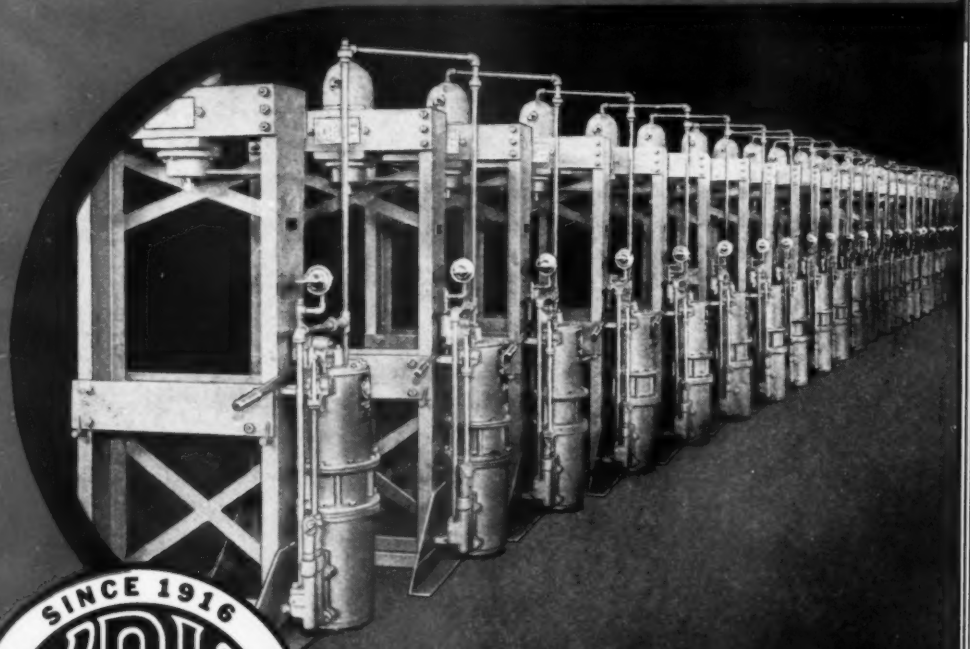


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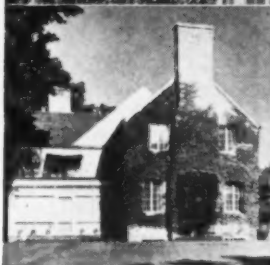
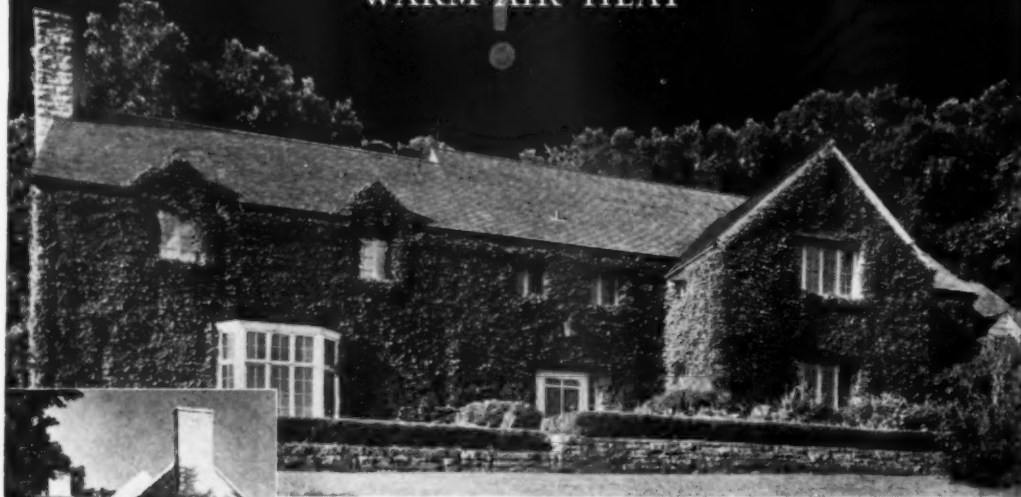
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PROMOTING YOUR BUSINESS IN

Architectural Forum



Why the preference for WARM-AIR HEAT



This Cedar Rapids, Iowa, home was designed and built by the McKay Construction Company. Clean air, filtered through DUST-STOPS—a Fiberglas product—circulates to upper and lower floors, each zoned for separate temperature control.



DUST-STOP Air Filters installed in this No. 300 Lennox oil-fire furnace, as in many other makes, assure that the mechanically circulated air will reach all parts of the house, free from nuisance dusts, lint and most airborne bacteria.

THE comfort and conveniences and economy of modern warm-air heat are already well known to hundreds of thousands of American families. In recent surveys, majorities of home planners have expressed preference for this form of heating system for the homes they intend to buy or build.

Winter Air-Conditioning systems provide indoor comfort through this exclusive combination of advantages:

1. **WARM AIR**, with room temperatures quickly responding to automatic controls.
2. **CLEAN AIR**—Filtered at the heating unit, all heat delivered throughout the warm-air duct system is free of nuisance dusts, lint and most airborne bacteria. Housekeeping burdens are lighter because walls and furnishings stay clean longer.
3. **MECHANICALLY CIRCULATED AIR**

keeps warm air fresh and clean while providing the proper number of air changes per hour.

4. **HUMIDIFIED AIR** affords greater physical comfort at lower room temperatures. Architects and builders may specify these modern warm-air units with the satisfaction of knowing that the function of air filtering will be performed efficiently and with economy for the owner by "DUST-STOP" replacement type air filters. This Fiberglas product is the outstanding choice of the industry as original equipment. DUST-STOPS for seasonal replacements are readily available through dealers in every community.

For complete information on DUST-STOPS, see Sweets' Files, or write: Owens-Corning Fiberglas Corporation, Dept. 96RP, Toledo 1, Ohio. Branches in principal cities. *T. M. REG. U. S. PAT. OFF.

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Other Fiberglas Products of interest to the architect: FIBERGLAS Building Insulation... FIBERGLAS for Cold Storage and Locker Plants... Noncombustible, decorative.

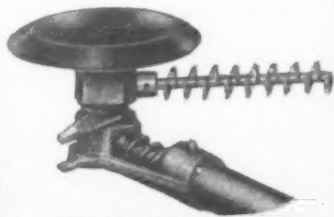


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"Your partner whose Actions speak louder than words"

AMERICAN ARTISAN, NOVEMBER, 1946



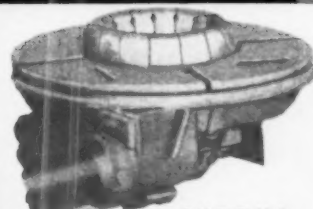
COAL COLLECTOR
(Patented)

No coal to shovel! Collector arm rotates in bin, gathering and conveying coal onto feed worm. No alterations to bin!



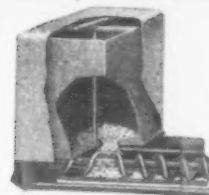
UNIVERSAL KNUCKLE

Can be installed in feed worm pipe. Feeds coal at any angle and around corners to furnace.



**CHROME
NICKEL ALLOY RETORT
AND GRATES**

Guaranteed durability — practically indestructible. Revolving grates distribute coal for efficient combustion.



**ASH CONTAINER
AND COVER**

Stores ashes automatically removed from furnace. Easy to empty — lift off cover, remove full container and replace with extra one provided.



**AUTOMATIC
CONTROLS**

Standard controls including specially-designed pilot control — the sensitive banking control with out-fire protection.

Sales Success

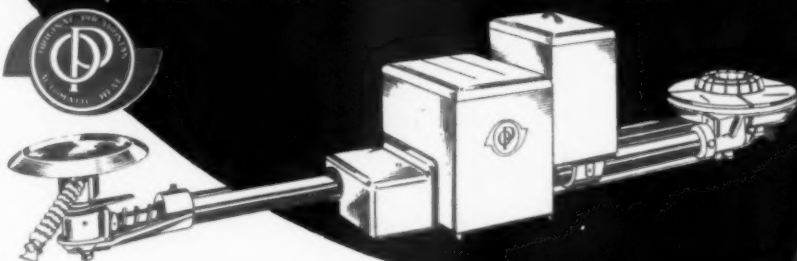
What makes stoker sales? Isn't it the ability to show your prospect that your equipment has many advantages over his present heating plant?

Right. That's why you can expect — and get — sales success with the "Original Pocahontas" Coal Burner. Every "O. P." mechanical feature is a sales feature. And all the mechanical features combined give you the greatest sales feature of all — FULLY AUTOMATIC COAL HEAT.

Several choice territories are still open. Write now for all the facts on the complete "O. P." line.

POCAHONTAS FUEL COMPANY, INCORPORATED

Stoker Division • 340 East 131st Street • Cleveland, Ohio



"O. P." COAL BURNER

**THE FIRST SUCCESSFUL BITUMINOUS BIN-FEED
ASH REMOVAL COAL BURNER... SUCCESSOR TO THE STOKER**



MANUFACTURERS OF DEPENDABLE AUTOMATIC
CONTROLS FOR A QUARTER OF A CENTURY

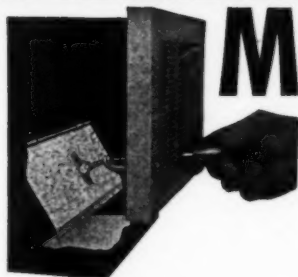
MERCROID

AUTOMATIC CONTROLS FOR HEATING, AIR CONDITIONING
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EQUIPPED EXCLUSIVELY WITH HERMETICALLY SEALED MERCURY SWITCHES.
ASSURING BETTER CONTROL PERFORMANCE, AND LONGER CONTROL LIFE

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Extra Profits in Your Pockets with **MONCRIEF'S** *Complete Line*



Mayn Air Damper
in stack head
eliminates dampers in
basement ducts.

MAYN AIR STACK HEAD DAMPERS

- ... Fool Proof!
- ... Quick and Easy to install with only 3 sheet metal screws!
- ... Rattle proof—noiseless after automatically locking in proper balancing position!
- ... One man does the job!

How Can You Save Time—Make Money Easier?

— IN STOCK READY FOR SHIPMENT —

Moncrief's Air Conditioning Stack Heads with factory installed Mayn Air Dampers and complete stock of popular size Mayn Air Dampers.

MONCRIEF'S SUREFIT FITTINGS

Take out the wasted hours . . .
Pull in the slack on heating installations . . .
TIME SAVING . . . MONEY MAKING
on any heating job.



AUTOMATIC HEATING and AIR CONDITIONING EQUIPMENT
that's "TOPS" for ALL TYPES and SIZES of HOMES!

For all Fuels,
Gas, Oil, Coal



Series L
Gas-Fired, Steel
Air Conditioning
Unit



Series W
Gas-Fired, Steel
Gravity Furnace



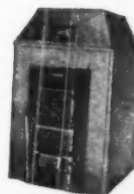
Series U
Gas-Fired, Steel
Utility Air Con-
ditioning Unit



Series 8000
Oil-Fired, Steel
Air Conditioning Unit



Series AC-700
Coal-Fired, Steel
Air Conditioning Unit



Series 700
Coal-Fired, Steel
Gravity Furnace



Series C
Coal-Fired, Cast
Gravity Furnace

THE HENRY FURNACE COMPANY
Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF
SINCE 1895

FURNACE PIPE AND FITTINGS

The New Webster Electric
Thermodrive

WEBSTER ELECTRIC

for control of warm air flow



Offers both

improvement for new equipment

and large conversion market

● The latest contribution of the Webster Electric Company of Racine, Wisconsin, to the warm air heating field is the new Thermodrive.

Thermodrive is designed to regulate warm air flow through control of fan speed in a forced warm air heating system so as to give more even room temperatures, along with more economical heating performance. It automatically increases fan speed as bonnet temperature increases, and decreases it as the bonnet cools. (Fan speed change can vary as much as 65 per cent from low to high.) A "sample" of warm air is continuously taken from the bonnet and discharged over a thermostatic bellows, which in turn actuates a sliding sheave. This changes the pulley's effective diameter and results in the increased or

decreased speed of the fan and warm air flow.

Thermodrive offers an opportunity to improve the heating efficiency of new equipment, making it still more efficient and salable.

Dealers will find a ready market in the opportunity to install Thermodrive on warm air heating plants already in operation. This market is large, and Thermodrive sales for this purpose are profitable.

Those who are manufacturing new equipment, and dealers who want to install Thermodrive on present warm air heating systems, should secure the complete story of this new unit by writing Webster Electric Company, Racine, Wisconsin.

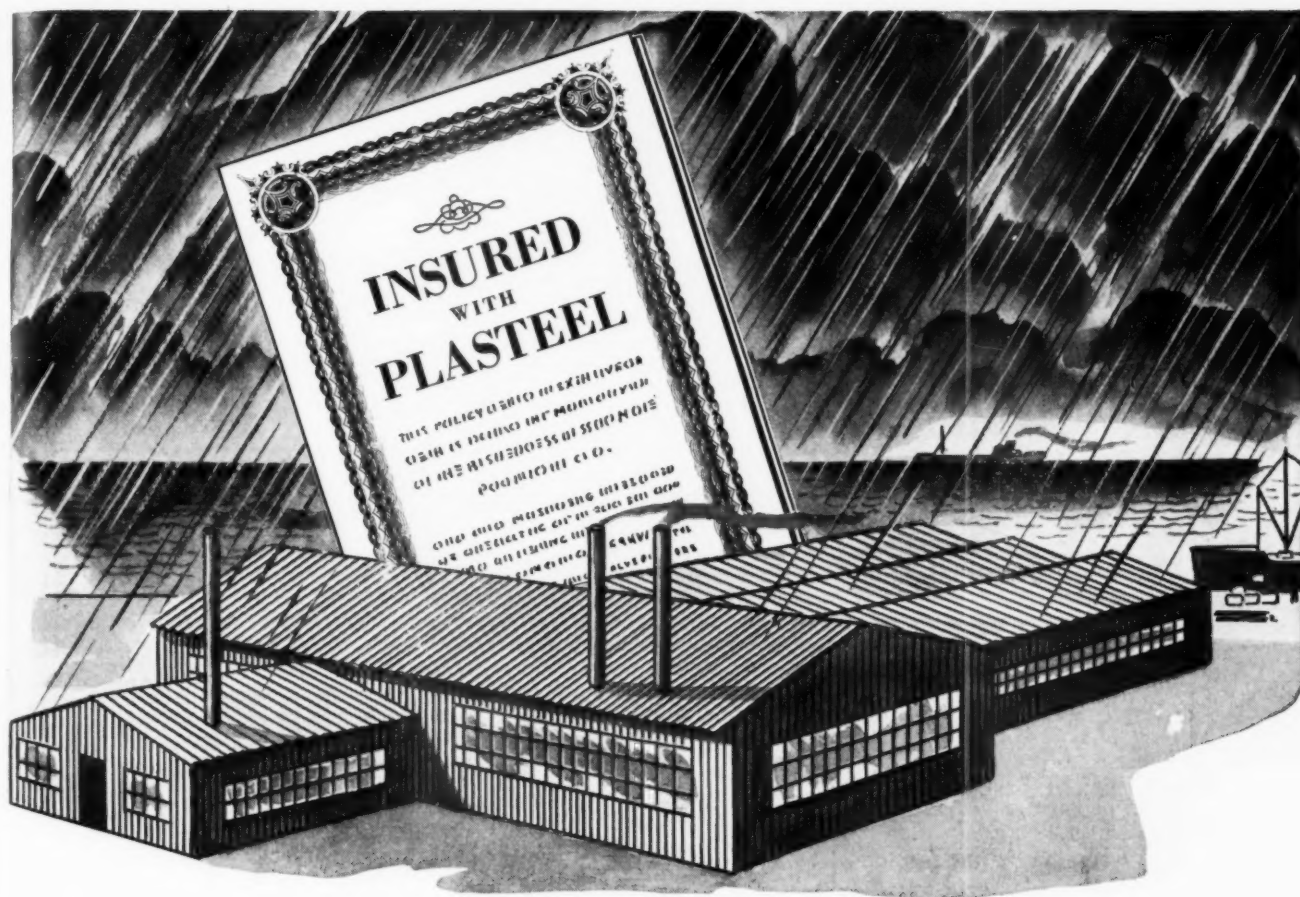
WEBSTER ELECTRIC
 RACINE WISCONSIN



Established 1909

Export Dept. 13 E. 40th Street, New York (16), N. Y. Cable Address "ARLAB" New York City

"Where Quality is a Responsibility and Fair Dealing an Obligation"



Insure your Factory Roofs against liability with **PLASTEEL**

Ordinary roofs are costly. Their constant need for paint and repairs add to their initial cost. With Plasteel, you can avoid this increased maintenance charge. Because Plasteel is permanent. It resists heat, cold, moisture, acid fumes, mineral dusts, salt spray and other corrosive influences. With Plasteel your first cost is your only cost—every roof an asset—and not a liability. Plasteel is made of high-strength steel sheets that are hermetically sealed against exposure within a weather-tight plastic formula. Then for further protection, a coat of pure mineral mica is added to give Plasteel an attractive surface that needs no paint and no repairs. That's why Plasteel protects permanently and insures roofs against maintenance—against liability.

Plasteel is available in standard-size sheets and gauges for roofing and siding with choice of 2½" or 1¼" corrugations. Also, flat sheets for fabricating into flashings, gutters, ventilators and similar products. Fabricates like ordinary sheet metal.

Write for samples and details.



PLASTEEL PRODUCTS CO.

General Office and Plant

Washington, Pennsylvania



In the past, there have been *more* Packard Sunlight motors available than there are right now. We hope to catch up with orders soon. But there have never been *finer* Packard Sunlight motors than those we're now turning out. Quality comes first with Packard Sunlight motors — and always will.

PACKARD SUNLIGHT MOTOR

Always has been — Always will be
A QUALITY MOTOR

Packard
REG. U.S. PAT. OFF. TRADE MARK

Packard Electric Division, General Motors Corporation, Warren, Ohio

PACKARD SUNLIGHT MOTORS for: compressors . . . washing machines . . . power-driven bench tools . . . ironers . . . milk separators . . . milking machines . . . furnace blowers . . . stokers . . . oil burners . . . water pumps . . . ventilators . . . and many other applications.

DEPENDABLE APPLIANCE MOTORS FOR THIRTY YEARS



IN CONNECTION with your steel problems...

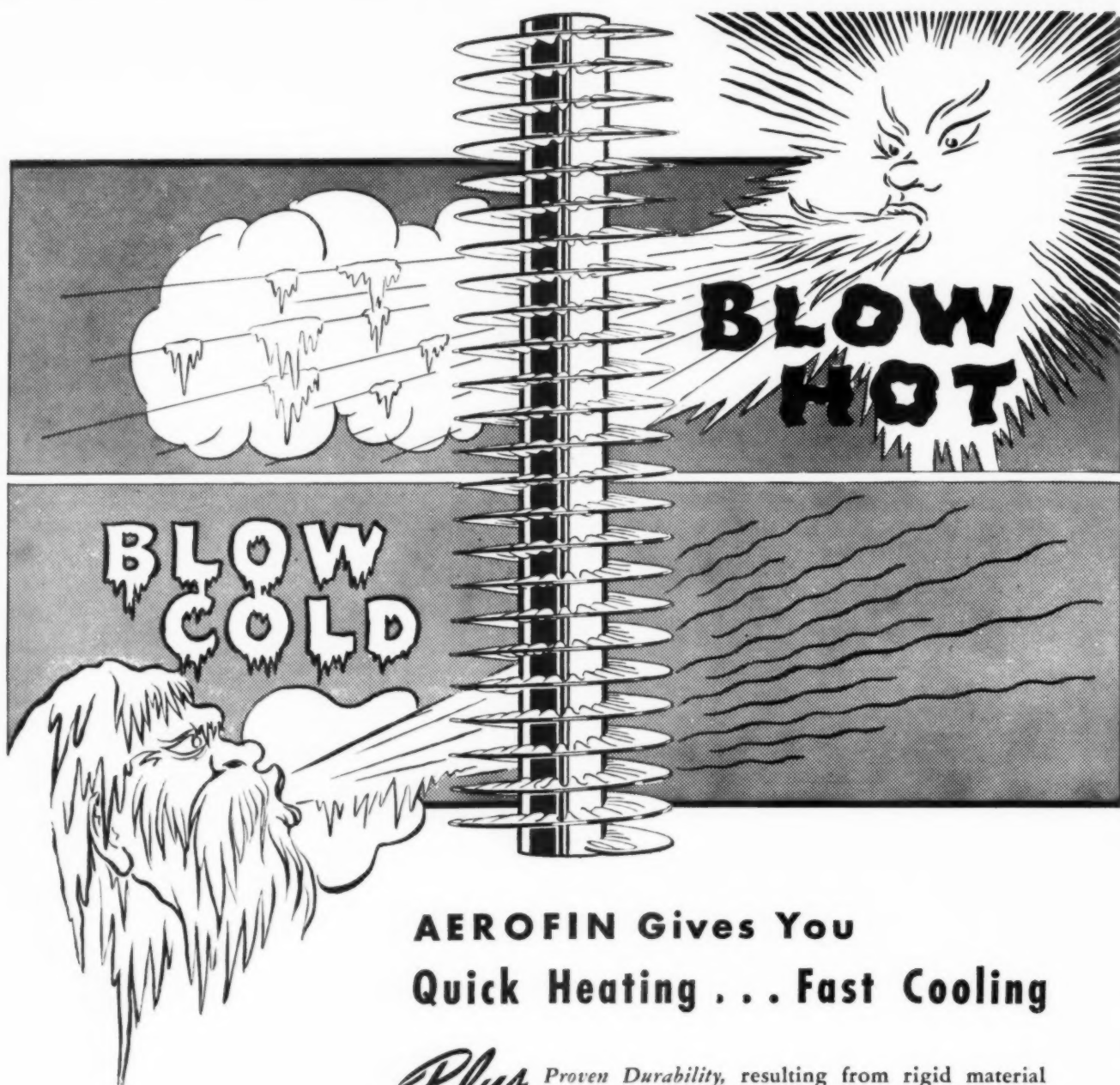
When the switchboard operator at Weirton makes your connection, you have a direct line to fast action on your steel problem. For Weirton is an integrated mill. Sales, metallurgy, production and shipping are closely coordinated "under one roof" to provide on-the-spot information, quick decisions, great flexibility of production.

Weirton's highly integrated operation enables us to give you faster, more specialized service on all the steels we make: Weirite, Weirzin, Weircoloy, Weirlead . . . hot and cold rolled strip, sheets and ternes . . . cold rolled spring steel . . . N-A-X High-Tensile.



WEIRTON STEEL CO.
WEIRTON, W. VA. Sales Offices in Principal Cities

Division of **NATIONAL STEEL CORPORATION**
Executive Offices, Pittsburgh, Pa.



AEROFIN Gives You Quick Heating . . . Fast Cooling

Plus Proven Durability, resulting from rigid material specifications and tough inspections.

Freedom from Service and replacement costs due to thorough application engineering.

Accurate Ratings which are maintained through the life of the installation.

Easy Installation because of light weight and unit assembly.

Air your problems with an experienced Aerofin Engineer.

Over 100,000,000 feet of Aerofin have been specified for
DEPENDABLE PERFORMANCE in Air-Conditioning,
Heating, Cooling, Condensing.

Aerofin is sold only by
Manufacturers of Na-
tionally Advertised Fan
System Apparatus—List
upon Request.

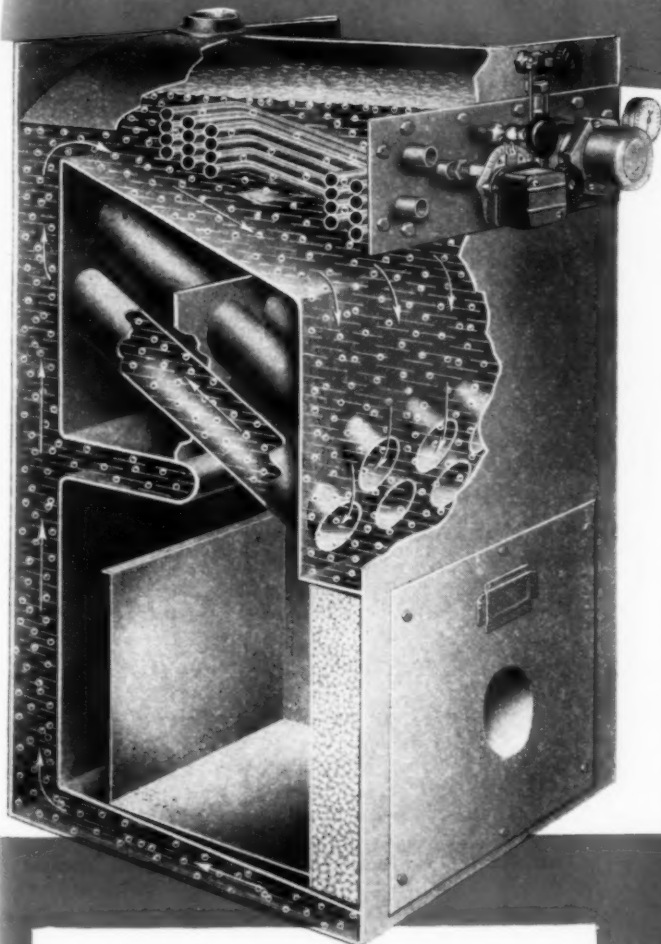
AEROFIN CORPORATION

412 South Geddes Street

Syracuse, New York

CHICAGO • DETROIT • CLEVELAND • NEW YORK • PHILADELPHIA • DALLAS • TORONTO

NEW PENSTEEL OIL OR GAS BOILER— WITHSTANDS DESTROYING STRAINS OF MODERN AUTOMATIC HEAT



The new Pensteel is a water tube boiler with the flame "cutting" (impinging on) the tubes at two points. Boiler manufacturers who make both fire-tube and water-tube boilers readily admit that the water-tube boilers are 20% more efficient as heat extractors.

Canadian Distributors:
ACTRITE EQUIPMENT COMPANY
768 St. Paul St., W., Montreal 3, Can.

It takes steel to withstand the destroying stresses of modern automatic heat. Remember—that automatic heat leaps from nothing to full flame in a fraction of a second. Ordinary boilers of more brittle metal "go" fast—and "go" in their most expensive sections—top and bottom. Repair and replacement costs are prohibitive. But steel expands and contracts to stand the gaff. A Pensteel Oil or Gas Boiler not only lasts longer before any repairs whatever are needed—when repairs are unavoidable they are made more easily and more economically.

The plate used in the Pensteel is extra quality $\frac{1}{4}$ " flange steel. The tubes also are of extra quality steel with the exceptional wall thickness of $\frac{1}{4}$ ". Combustion chamber is of stainless steel—which provides the quickest heat transfer of any material practical for combustion chamber requirements. Throughout, the Pensteel is designed for "whisperless" operation . . . in fact, this boiler is practically a "silencer" for oil burners.

Sell the boiler especially designed for modern automatic heat requirements. Write for new bulletin—just published.



PENN BOILER & BURNER MANUFACTURING CORPORATION



***I'm taking my
business where I
get the Free . . .
Budget Payment
Protection Plan . . .***

That's going to be the preference of millions of time-buyers. They will trade where they get the valuable free Budget Payment Protection Plan—furnished to you by Allied Building Credits, Inc. It guarantees that all remaining payments on an ABC instalment note are cancelled should the note-maker die. No further payments need be made either by the survivor or the estate.

Too good to pass up—this free protection will influence many customers to trade with you. Offered exclusively by Allied Building Credits, Inc., the Budget Payment Protection Plan is automatically included in every ABC repair or modernization job you sell. It costs you nothing. Allied Building Credits absorbs the complete cost.

FOR complete information how this service can go to work for you, write Allied Building Credits, Inc., 2504 First National Bank Bldg., Saint Paul 1, Minn.

OFFICES IN
PRINCIPAL
CITIES



ALLIED BUILDING CREDITS, INC.
Complete Instalment Note and Mortgage Services for the Building Industry



PROVED-

- **MOST DEPENDABLE**
- **MOST ECONOMICAL**
- **MOST EVEN HEAT**

Proved for years in thousands of homes under every condition . . . proved by files filled with letters of praise!

These testimonials are written by users who are typical of your prospects—the people on whom your success depends. When you satisfy these families, their praise will assure your future prosperity.

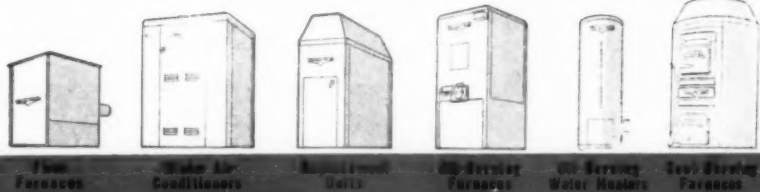
There are many reasons why these furnaces give this satisfaction. Write us now for the “reasons why”—simple but revolutionary facts you owe it to yourself to know.



New Oil-Burning Winter Air-Conditioning Furnaces with the Exclusive Vacuum-Draft

Norge Heat

Division of Berg-Warner Corporation • 574 East Woodbridge St., Detroit 26, Michigan
 “Complete Line with Year-Round Profit-Making Advantages Combined by No Other Manufacturer”



Four Furnaces

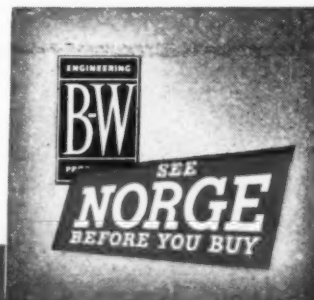
Winter Air-Conditioners

Gas-Burning Units

Oil-Burning Furnaces

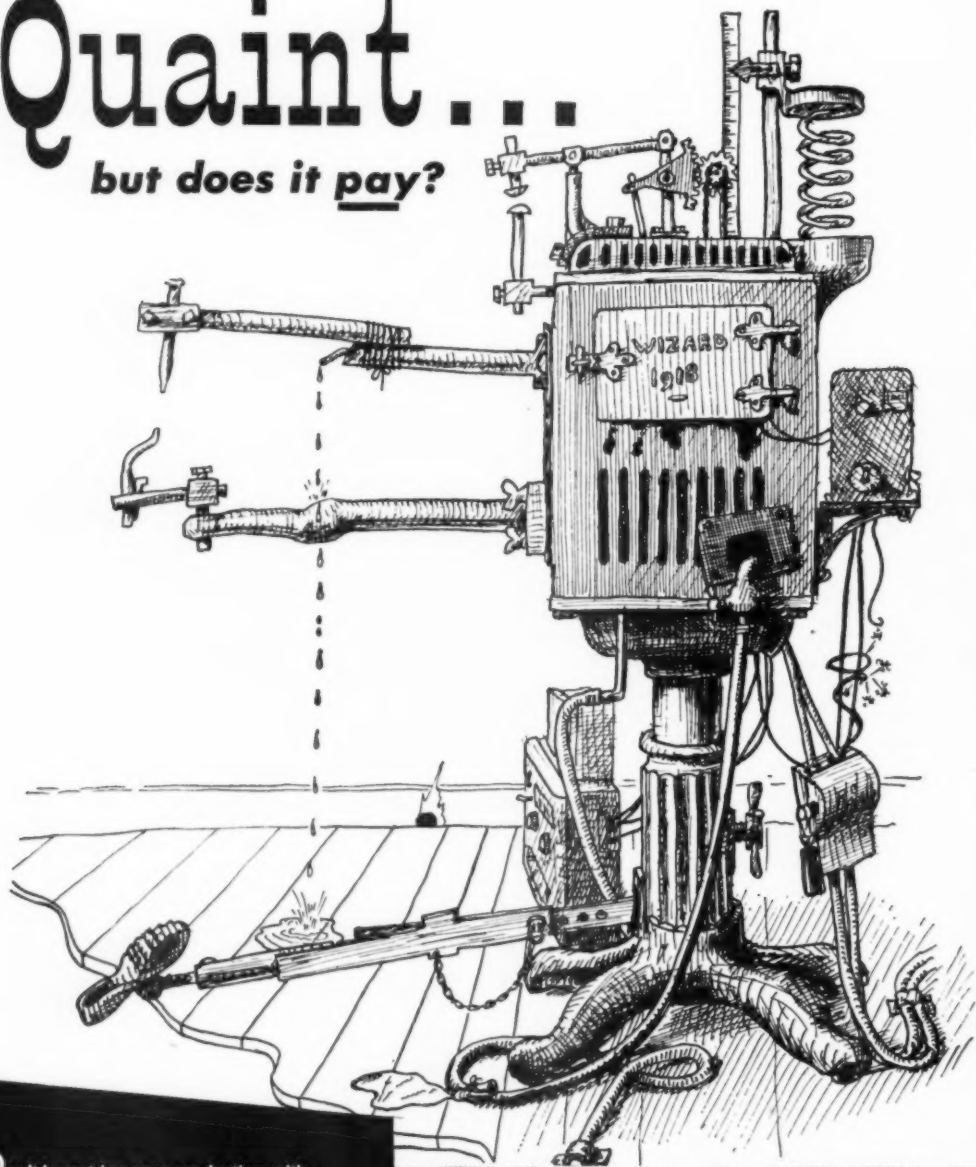
Oil-Burning Water Heaters

Gas-Burning Furnaces



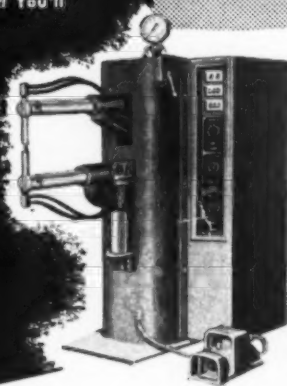
Quaint...

but does it pay?



Don't hamstring your production with out-of-date resistance welding equipment. Time and money spent on keeping ancient machines in operation, training operators, etc., is *lost!* You'll step up production . . . reduce man hours . . . stay ahead of competition with modern, completely automatic electronically controlled SCI AKY welders.

Sciaky has a complete line of standard spot, projection, portable, seam and flash welders that are engineered for production. We're specialists also in the design of "tailor-made" multiple gang welders. Write today for details.



If you're going to the Metal Show . . .

The latest Sciaky welders will be in operation at the National Metal Congress in Atlantic City, November 18 to 22. You are cordially invited to visit our booth E-220 in the Exhibit Hall.

SCI AKY BROS.

Offices and Representatives
in Principal Cities

Inc.

Plants in
London and Paris

4905 W. 67th St., Chicago 38, Ill.



VICTOR

FURNACES

WITH HEAT RADIATING FINS

- To make quicker profits, eliminate competition — sell VICTOR, the furnace with exclusive heat radiating FINS. There is no substitute for experience — and the name VICTOR has stood for quality, permanent user satisfaction and greater dealer profits for 56 years. Prompt and expert engineering co-operation, ease of installation, actual reduction of competition, make the VICTOR line easier to sell.

FOR OIL, GAS AND COAL

HALL-NEAL FURNACE Co.

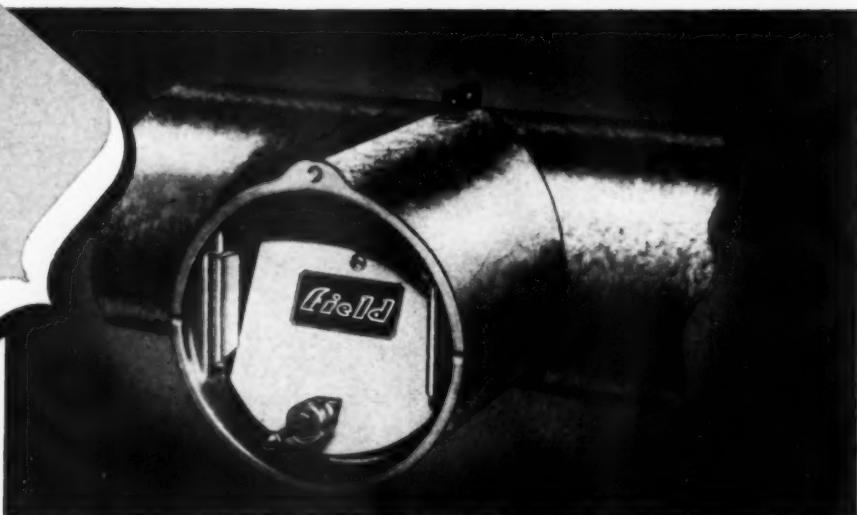
VICTOR Quality Furnaces Since 1890

1326 N. CAPITOL AVENUE • INDIANAPOLIS 7, INDIANA

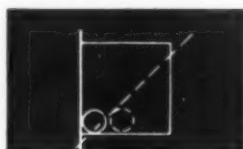
ON
THE FINEST
HEATING
EQUIPMENT

DRAFT IS
CONTROLLED
by
Field

HEATING EQUIPMENT
COAL · OIL · GAS

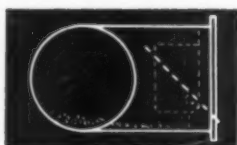


The famous *Field* design



ROLLING TYPE HINGE PIN

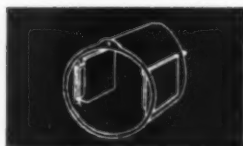
— means no friction, no binding, no need for oiling, no fear of corrosion. Note the off-center gate mounting.



EXTENDED HOUSING

— places gate outside the flow of fouling soot and gases — no warping, no binding.

SIDE WINGS
— mean greater accuracy throughout the full range of the control. Fuel savings range up to 25%!



● Because so much depends on proper control of drafts, leading heating equipment manufacturers are selecting the Field Barometric Draft Control as standard equipment. And alert dealers are installing Field Controls in all hand-fired furnaces in their territories. The installation is highly profitable, and provides a "door opener" for future sales of automatic heating equipment. Write today for facts on the Field line — most efficient, most accurate, most reliable draft controls made today.

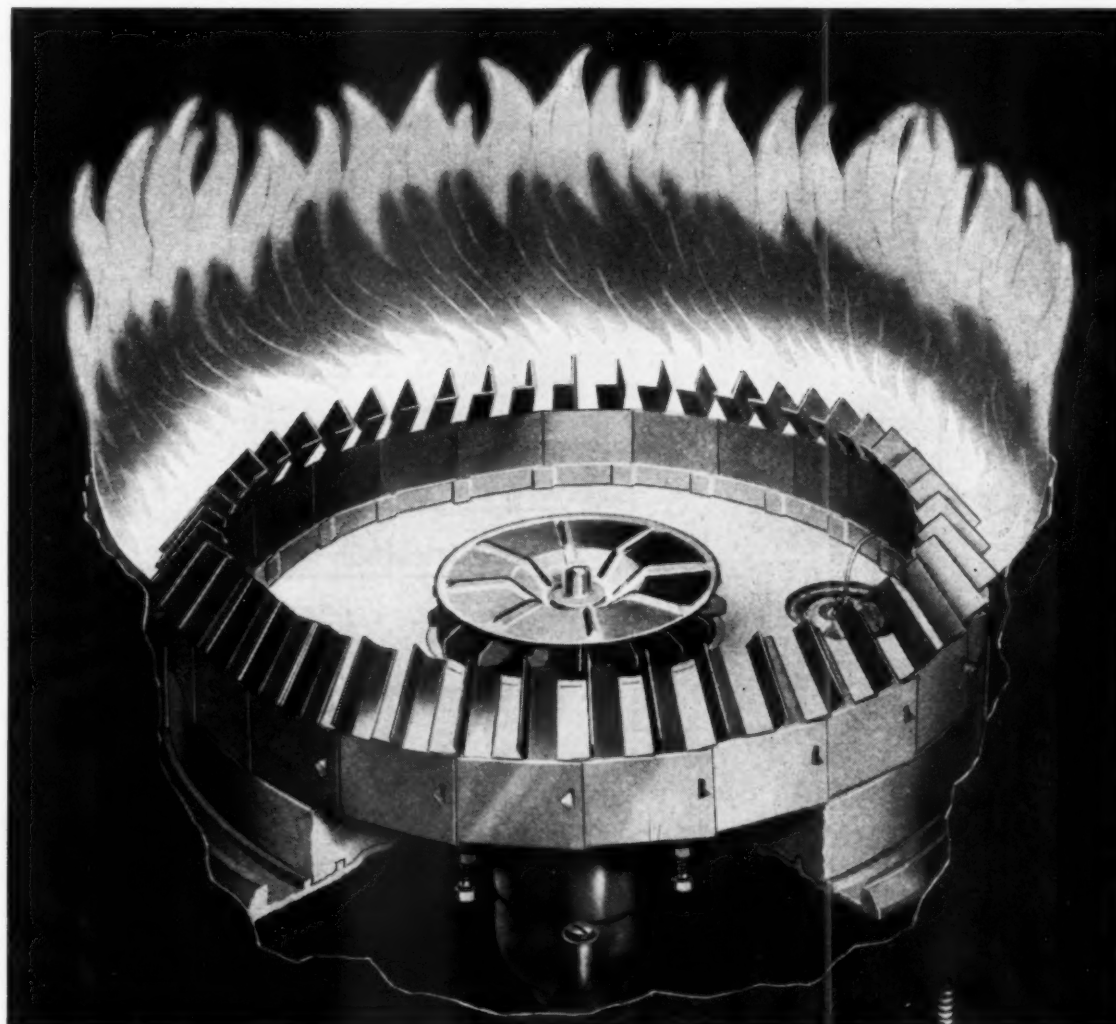
➡ And the Field Control comes complete ready to install.

Field

See our exhibit at the 7th International Heating and Ventilating Exhibition, Lakeside Hall, Cleveland, Ohio, Jan. 27-31, 1947, Exhibit No. 25.

FIELD CONTROL DIVISION
OF H. D. CONKEY & CO. MENDOTA, ILLINOIS

Toridheet Rotary Oil Burner



Three magical values: ECONOMY • EFFICIENCY • COMFORT

We illustrate the Toridheet Rotary Burner. You will note the picture dramatizes the wall wiping flame in *action*. The action of this flame is important because it contributes so much to the extraordinary *speed* and efficiency of this burner. What do we mean by efficiency? In the case of Toridheet Rotary, we mean maximum heat pro-

duction with minimum waste or loss. That *guarantees* ECONOMY and COMFORT to the user. Added to *efficiency, economy and comfort*, Toridheet Rotary brings to the dealer that most important factor in assuring long run sales success—a national record for *low maintenance and service costs*.

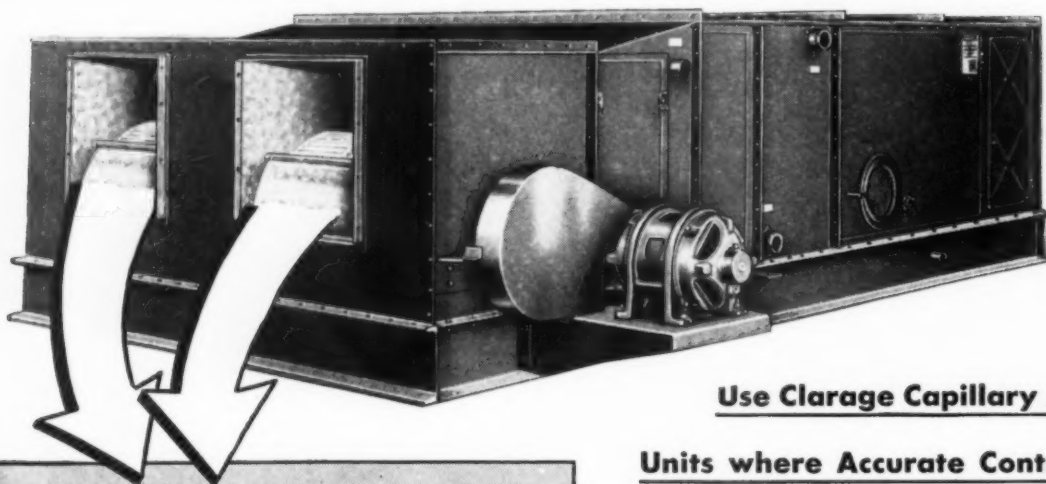
TORIDHEET DIVISION

CLEVELAND STEEL PRODUCTS CORPORATION, CLEVELAND 2, OHIO

Affiliated Canadian Manufacturers: Conroy Manufacturing Company, Ltd., Catharine St., St. Catharines, Ont.

**OIL BURNERS • OIL BURNER BOILERS • OIL WATER HEATERS
AIR CONDITIONING UNITS • COAL AND GAS FURNACES**

WHEN YOUR PLANT AIR GOES IN HERE



Illustrated is a No. 34H3 Capillary Unit Conditioner with cooling and heating coils, providing complete air conditioning in one assembly.

It Comes Out Here
CLEAN and COOLED
HUMIDIFIED or DEHUMIDIFIED

Use Clarage Capillary Air Conditioning

Units where Accurate Control of Temperature and Humidity is Important — and where Maximum Air Cleanliness is Vital to Production, Uniform Quality of Product, Health or Safety.

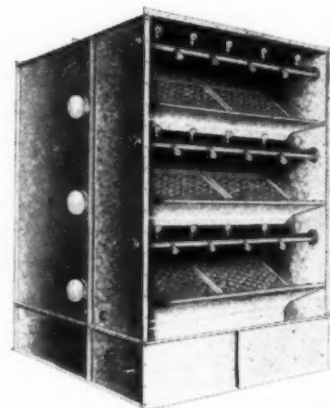
Clarage Capillary Air Conditioners are complete factory assembled units, including a Capillary cleaning section, pump, heating coils, fan, drive and motor. They are available in seven sizes — 1800 to 20,000 c.f.m. Horizontal units, as shown above, are built in both Class I (con-current) and Class II (counter-current) types. Vertical units in Class II arrangement only.

There are excellent reasons for considering this modern air conditioning equip-

ment: (1) Inexpensive to install — no costly building alterations required; (2) Everything in one "package" — no parts to assemble on the job; (3) Proper coordination and performance of all parts assured by factory tests; (4) Low first cost and low operating costs—the result of shrewd, advanced engineering.

★ ★ ★

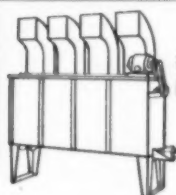
Write for our Bulletin 122. It gives complete information.



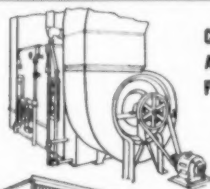
CAPILLARY AIR WASHERS

are available in a series of five height sizes, and in eleven widths — capacities from 4,400 to 132,000 c.f.m. They are built in Class I (con-current), Class II (counter-current) and Class III (con-current with coils) types. Bulletin 120 describes complete line of equipment.

**SOME
OF OUR
OTHER
PRODUCTS**

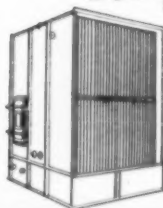
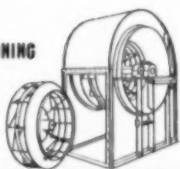


**UNIT
HEATERS**



**CENTRAL STATION
AIR CONDITIONING
PLANTS**

**AIR CONDITIONING
AND
VENTILATING
FANS**

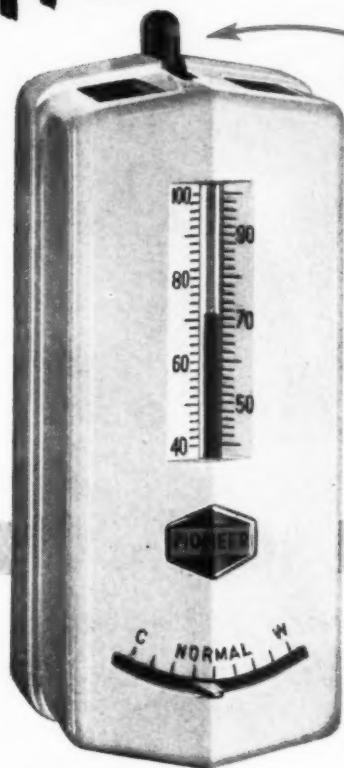


**AIR
WASHERS**

CLARAGE
FAN COMPANY
Kalamazoo, Michigan

**APPLICATION ENGINEERING OFFICES
IN ALL PRINCIPAL CITIES**

THE PIONEER Heat Regulator



with the
little red light

brings you these basic satisfactions with solid fuel

- | | |
|----------------|------------|
| 1. COMFORT | 3. ECONOMY |
| 2. CONVENIENCE | 4. SAFETY |

PLUS

These quality features

- | | |
|---|--|
| 5. Red Signal Light | 9. Exceptionally quiet operation |
| 6. Heat-anticipating Thermostat | 10. Unusually liberal guarantee |
| 7. Short-circuit-proof Transformer listed by underwriters | 11. Spring Return Damper Motor available for power failure protection |
| 8. Unique type All-Weather Control
(a) High limit for safety and economy
(b) Low limit to hold fire in mild weather | 12. And other internal construction features perfected over many years by Master Electric engineering research |

write for information to-

THE MASTER ELECTRIC COMPANY

DAYTON 1, OHIO

QUALITY APPARATUS—LASTING SATISFACTION

No other addition to home equipment will add so much for so little





When you deliver True Indoor Comfort with a Mueller Climatrol System . . .

***you not only sell a satisfactory job today,
but you build good will for tomorrow***

Your customers are more than satisfied with the true indoor comfort delivered by the Mueller Climatrol system. That's why it pays you to concentrate on the Climatrol line. Satisfied customers mean lasting good will — the best foundation for your future business.

Climatrol means *climate-control* through the conditioning and handling of air. The Mueller Climatrol system is designed to deliver the essential comfort factors. When you sell your customers a Climatrol system, you give them the latest in heating comfort. You also give them a basic unit engineered for easy adaptation to future developments in home-comfort equipment.

Today's Climatrol models are smart and modern in appearance — nationally known and advertised — and backed by an 89-year performance record. The Mueller line is complete, enabling you to sell the right equipment for every job. Each Climatrol unit is specifically designed for efficiency with a particular fuel — gas, oil, or coal, whichever is preferred. Be a Climatrol "Comfort Merchant" — for satisfied customers and lasting good will.

Write for bulletins.

L. J. Mueller Furnace Co.

2010 West Oklahoma Avenue

Milwaukee 7, Wisconsin



MUELLER
Climatrol

D-67

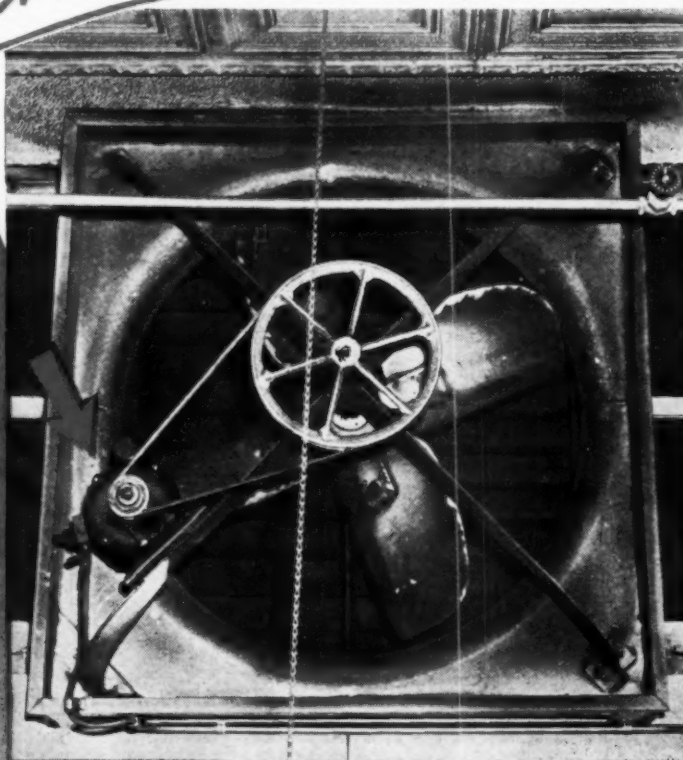
REG. U. S. PAT. OFF.

For Quiet, Comfortable

AIR CIRCULATING.

Equip Your Fans
and Blowers
with

**CENTURY
MOTORS**



Century Capacitor Motor provides quiet power for a fan in the Medical Department of an industrial plant.



The quiet starting and the quiet running characteristics of Century Motors make them ideal for all heating, ventilating, and air conditioning equipment. Thousands of installations in hospitals, homes, public buildings, and factories are giving completely satisfactory performance.

Throughout their long life they give the kind of service that adds to the comfort and convenience derived from your equipment.

Century Motors may be a vital factor in your efforts to produce a more satisfactory installation . . . specify Century.

Century Motors are built in sizes from 1/20 to 600 horsepower.



CENTURY ELECTRIC COMPANY, 1806 Pine St., St. Louis 3, Mo.

CE-453

Offices and Stock Points in Principal Cities

Announcing A REVOLUTIONARY NEW FLOAT VALVE

THE CRC-246

ADVANCED IN PRINCIPLE
SIMPLER IN APPLICATION
IMPROVED IN APPEARANCE
SUPERIOR IN PERFORMANCE

- Connects directly to burner nipple. Eliminates tee, fittings, and tubing.

- Due to the position of the metering stem, approximately in the center of the assembly, this valve can be tilted a reasonable amount without affecting fuel flow. Leveling by eye is satisfactory. This saves time at assembly and minimizes field complaints.

- Rate of flow to burner is constant with inlet heads varying from 2 inches to 84 inches. Permits placing bottom of tank flush with top of valve and assures maximum heater output as long as there is fuel in tank. Makes possible design of heaters of less overall height or greater tank capacity. Eliminates "dying fire" when fuel supply is low.

- Safety mechanism trips from level of fuel in burner as well as level in valve. Results in less pooling of fuel in burner if fire is extinguished.

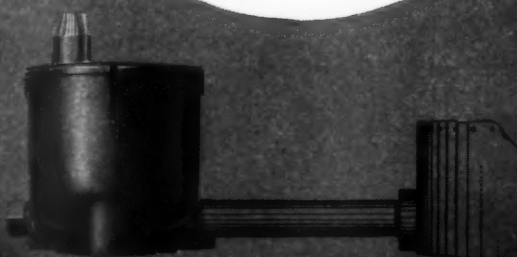
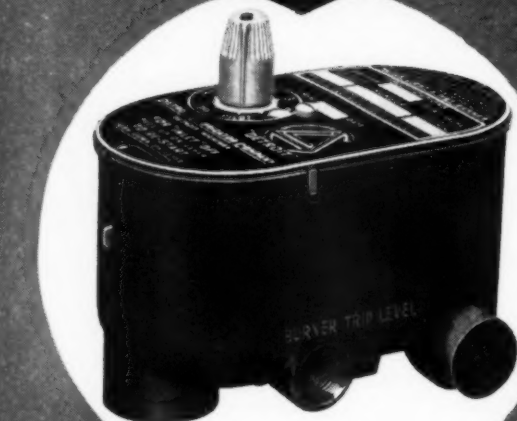
- Magnetic trip mechanism is positive. Will not trip from vibration.

- Low flows are extremely accurate and consistent—a decided advantage for low pilots on water heaters and furnaces.

- Fully temperature-compensated. Uniform fuel flow regardless of temperature assures full heater output at all times.

- Smaller size—neat appearance—only two-thirds the size of present valves. Provides greater flexibility in heater design.

- Simple to service. Few parts to handle—job takes only a few minutes.



DETROIT LUBRICATOR COMPANY General Offices: 5900 TRUMBULL AVENUE
DETROIT 8, MICHIGAN



Division of **AMERICAN RADIATOR & Standard Sanitary CORPORATION**
Canadian Representatives — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

CHECK THE FACTS and you'll find...

OIL-O-MATIC

LEADS IN

MERCHANDISING



Whether selling is "soft" or "tough", Oil-O-Matic always has an organized plan ready to help dealers meet actual conditions in the field. For who but Oil-O-Matic has given its dealers a factory-directed sales program like the "Lucky 4-Leaf Clover Selling Plan" which helps them sell now on a deferred delivery basis . . . and also helps them keep present orders sold!

And what other sales plan is backed by such powerful selling ammunition as Oil-O-Matic's dynamic, convincing "Best Seller" sales manual . . . plus a veritable arsenal of new dealer literature, signs and displays . . . plus national magazine and newspaper advertising and factory-dealer cooperative advertising that drives home to millions of prospects the fact that "It's WHAT you get that counts"—not when you get it!

Finally, who but Oil-O-Matic backs its merchandising efforts with a factory-operated Retail Sales Training School that teaches dealers' salesmen how to really sell!

Today's efforts, piled on Oil-O-Matic's advertising expenditure to date of \$5,000,000, is evidence that "25% of the industry's sales by 1950" is no audacious dream but an attainable Oil-O-Matic objective in which you can share.

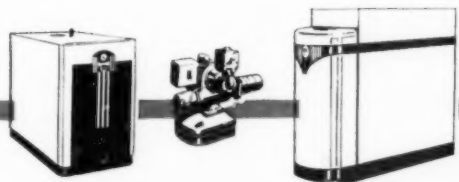
In addition, Oil-O-Matic leads in . . .

DESIGN—Because it is designed to operate on the famous Low Pressure Principle, wherein air and oil are mixed *inside* the burner, Oil-O-Matic handles any type and grade of fuel oil without clogging, and gives unequalled efficiency, economy, and dependability.

MANUFACTURING—The manufacturing facilities and know-how that made Oil-O-Matic the leader . . . that resulted in a \$20,000,000-a-year war production rate . . . are now devoted to a still greater volume of precision-built peacetime products.

ENGINEERING—"Engineering against engineering!" That is Oil-O-Matic's policy. It means designing an oil burner that is better than any other burner—not just better than hand firing. To carry out this policy still further, Oil-O-Matic has greatly expanded its Engineering and Research Division.

SERVICE TRAINING—Oil-O-Matic was first in the industry with a complete installation and service program. Today, Oil-O-Matic's Service School is turning out thoroughly trained oil heat specialists at the rate of 1,000 a year.



WILLIAMS OIL-O-MATIC DIVISION, Eureka Williams Corporation, BLOOMINGTON, ILLINOIS



THIS *Star-Spangled* LUSTRE

MEANS LONGER-LASTING SHEETS

The brightly-spangled, zinc-coated surface of Beth-Cu-Loy Galvanized Sheets adds a lot to the appearance of any finished job.

But here is something else this gleaming surface means—something more important than good looks. It means resistance to rust, ample protection against the corrosive effects of moisture.

Beneath this lustre Beth-Cu-Loy Galvanized Sheets have a second line of defense against corrosion, a base of copper-bearing steel. Containing 0.20 to 0.30

percent copper they have from two to three times the atmospheric rust-resistance of ordinary steel or iron sheets.

Beth-Cu-Loy Galvanized Sheets are not expensive; they are priced at very little more than ordinary galvanized sheets. This slight extra cost is returned many times in longer life and added customer satisfaction.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation*

Beth-Cu-Loy Galvanized Sheets



**WANT A TIP
ON A
SURE WINNER?**



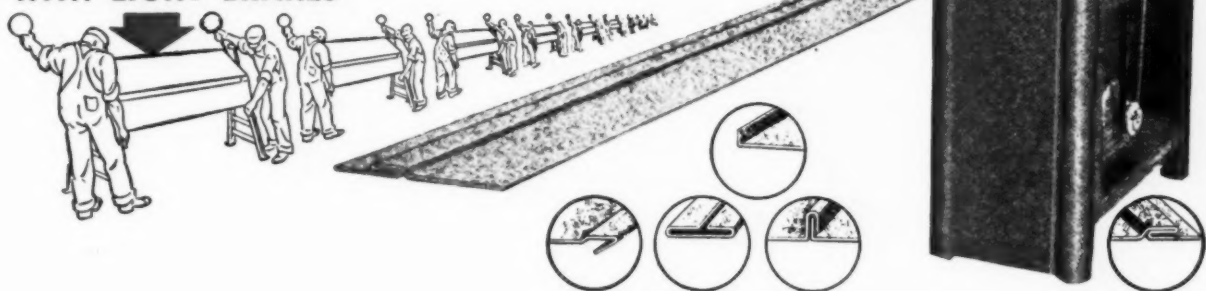
...GET A LOCKFORMER!

ALL Lockformers are "sure" winners. Nine years of service in the hands of thousands of users has removed any doubt as to their ability to make money—as to their ability to keep going! Conservatively figured, and as compared to hand methods, a Lockformer cuts fabrication time in half! Other savings result from quicker

and easier installation—from boosting volume possibilities many times without increasing shop space or overhead.

These are some of the reasons why a Lockformer is a sure winner—why it makes money every-time you use it—why it keeps on making extra profits year after year. Write us for full facts.

**ONE MAN WITH A LOCKFORMER CAN MAKE MORE
PITTSBURGH LOCKS THAN SIXTEEN MEN
WITH EIGHT BRAKES**



THE LOCKFORMER CO.

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"I'm going along
WITH BRYANT"

Sure, it's tough . . . You have a rich market for sales and services, and you need equipment—equipment that you can't get immediately. Believe us, we know how tough it is, because conditions are making it necessary for us to accept hundreds of orders only on the basis of "delivery when possible".

Yes, we know all too well that there's not enough Bryant equipment to go around, even though Bryant has added many new products and greatly increased production facilities. We know, too, even though you might prefer Bryant, that sometimes you will find it necessary to accept other equipment to complete installations you want to make.

So we say: if it's good, and you can get it—take it.

But at the same time we say: think ahead . . . to the time when your installations will have to be *sold* . . . when your position in the face of competition will be greatly strengthened by known-brand equipment, its reputation and its backing by sales aids and advertising. That's when you will be *set* if your organization is lined up with a manufacturer who will provide the right kind of equipment and selling tools with which to win jobs in the competitive market.

We hope that this kind of thinking will lead you, like a lot of others who specify and install heating equipment, to decide: "I'm going along . . . with *Bryant*."

BRYANT HEATER COMPANY
17825 St. Clair Avenue, Cleveland 10, Ohio
One of the Dresser Industries

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GAS
HEATING



LET THE PUP BE FURNACE MAN



Write for this new six-page selling folder describing the Bryant Model 105 Automatic Storage Water Heater.

The most complete line of gas heating equipment in the nation!



PENICILLIN PRODUCTION *depends on* SUCCESSFUL AIR-DISTRIBUTION

Anemostats meet the strict demand for successful air-distribution at the Penicillin Plant of the Commercial Solvents Corporation.

Total control of conditioned air is a critical factor in the production of Penicillin.

Before conditioned air can be distributed to the rooms of the "sterile area" of this Penicillin plant, it must be filtered, washed, cooled, irradiated with ultra violet. And it must reach these rooms that way!

At the Penicillin plant of the Commercial Solvents Corporation, Anemostat Air-Diffusers serve all the rooms in the "sterile area." They solve specific air-distribution problems . . . from the perfect air-diffusion required in the filtration, vial-filling and final sealing rooms . . . to providing fullest air-comfort for workers obliged to wear an extra head-to-toe outfit of sterile garments.

An executive of the corporation states: "Inasmuch as Anemostats are necessary for efficiently supplying the sterile conditioned air required in the processing and testing of Penicillin, this equipment may be considered to contribute importantly

to the actual production of Penicillin."

Such air-diffusion, controlled to scientific standards, is possible through Anemostats because they are scientifically designed to distribute conditioned air in pre-determined patterns without drafts. Here is how Anemostats provide perfect air-diffusion:

Anemostat Air-Diffusers siphon room air (equal to about 35% of the supply air) into the cones. This room air is then mixed with the supply air *within* the Anemostat — and thereby revitalized — before it is recirculated in a multiplicity of planes in all directions equalizing temperature and humidity throughout the room.

If you have an air-diffusion problem, an Anemostat engineer is ready to help. We'll be glad to arrange a consultation without obligation.

Write today for full details.



All Anemostats are specially designed to solve individual air-conditioning problems. However, the great variety of models that have been developed and standardized, often permits us to assure prompt delivery from stock.

ANEMOSTAT

REG. U. S. PAT. OFF.

ANEMOSTAT CORPORATION OF AMERICA

10 EAST 39th STREET

NEW YORK 16, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

"NO AIR-CONDITIONING SYSTEM IS BETTER THAN ITS AIR-DISTRIBUTION" ^{AC-1079}



A WINNING COMBINATION

Chrysler Airtemp puts a hard-hitting Triple Line on the field for greater profits every month of the year. It's a line that will make *your* organization a year-around winner!

Reading left to right in the famous Chrysler Airtemp Triple Line are: *Automatic Home Heating*, "*Packaged*" *Air Conditioners* and *Commercial and Industrial Refrigeration*.

The heating line is the most complete on the market. It includes automatic heating for homes of all sizes. There are gas, oil and coal fired models—furnaces and boilers; stokers, conversion gas burners, water heaters, and a combination heating and cooling unit.

The well-known "*Packaged*" Air Conditioners are a simplified form of Summer Cooling, suited for practically every air conditioning purpose.

Chrysler Airtemp refrigeration products, ranging up to 75 h.p., are designed to serve every commercial and industrial refrigeration requirement.

Behind this Triple Line is the engineering and quantity production skill of Chrysler Corporation—plus a long-range policy of national advertising, merchandising and product development.



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There's a Chrysler Airtemp dealer agreement for one, two or all three lines—real profit opportunity all year long. For full details, write . . .

AIRTEMP DIVISION OF CHRYSLER CORPORATION

DAYTON 1, OHIO

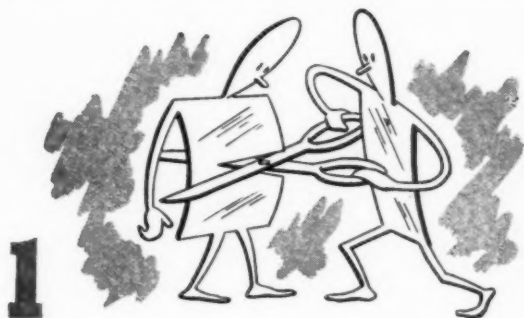
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A I R C O N D I T I O N I N G
HEATING • COOLING • REFRIGERATION

Some shop facts about Stainless Steel

Hundreds of sheet metal contractors from Middlebury to Monterey have learned how to work with ARMCO Stainless Steel—and like it! These smart contractors

are relying on stainless to help them clinch the quality jobs, the money-making jobs. They are betting on the brilliant, lasting beauty of this popular rustless metal. Meanwhile, the "shop facts" are these . . .



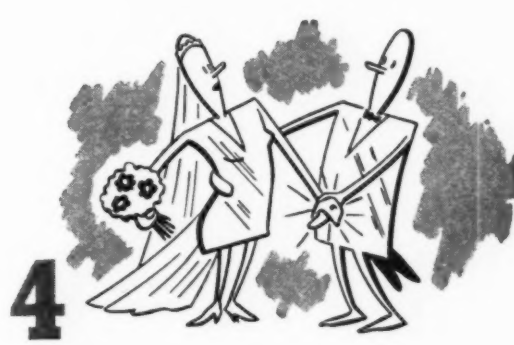
1 YOU CAN SHEAR STAINLESS STEEL of the nickel-chromium grades with the same equipment you use on mild steel. The only difference is, you'll need slightly more power and a little closer set on the shear blade.



2 YOU CAN BLANK OR PUNCH STAINLESS without trouble, simply by using more power at lower press speeds. Tools must be sharp—but that's wise in working with any metal.



3 YOU CAN FORM OR BEND STAINLESS on either hand brake or power brake, using the same methods as with mild steel and simply "bearing down" a little harder.



4 YOU CAN WELD STAINLESS. Soft-solder or silver-solder it. Draw or deep-draw, anneal, grind, polish or buff. Or any other fabricating work you please.

These brief facts about stainless are good for your shop men to know. We can give you more if you want them. One of these days ARMCO Stainless will be plentiful again, and you'll be able to take the good-profit jobs now waiting to be done in the

homes, stores and factories of your city. Armco Mills and Distributors are working hard to speed that day. Meanwhile, keep in close touch with your Armco Distributor. The American Rolling Mill Company, 4671 Curtis Street, Middletown, Ohio.

The American Rolling Mill Company

Special-Purpose Sheet Steels • Stainless Steel Sheets, Bars & Wire



Vertical transfer between floors.

Dispatch to multiple stations.

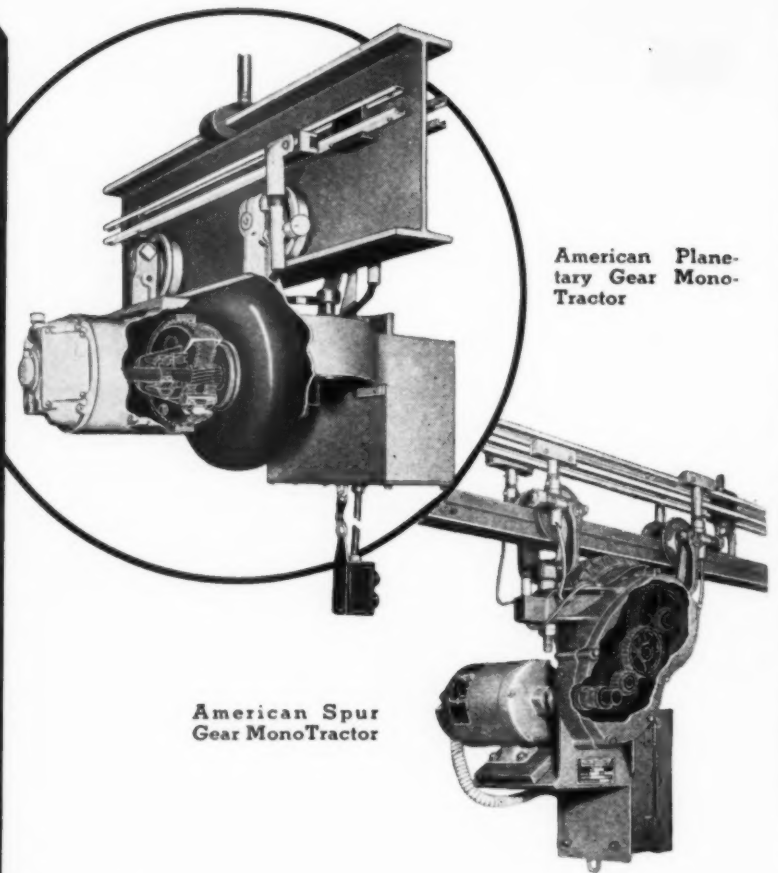
Delivery to fixed stations.

Delivery to multiple stations.

Delivery to movable stations.

Selective dispatch between multiple stations.

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Through the application of simple electrical and mechanical devices, American MonoTractor Units perform automatic operations with extreme accuracy and reliability, saving costly handling labor and supervisory attention.

While unique in many features, such systems are built mainly from standard units. MonoTractors can be applied to carriers operating on any smooth bottom track. An American MonoRail Engineer is available for consultation in every important industrial area.



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THE AMERICAN MONORAIL COMPANY

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AMERICAN ARTISAN, November, 1946



Selling FLUID HEAT PRODUCTS

OPENS THE DOOR TO MORE FUEL OIL CONTRACTS!

Selling Fluid Heat Products gives you an edge in building a steady, profitable fuel oil business . . . by gaining you entrance to more homes. Here's why:

- 1** The Fluid Heat line is really complete . . . enables you to make more sales by satisfying more customers . . . with a trademark that has won solid consumer acceptance by dependable performance since the beginning of oil heating.
- 2** The Fluid Heat line's engineering and construction is kept ahead of competition by a wide-awake development laboratory . . . headed by engineers long experienced in the industry.
- 3** You sell Fluid Heat line under a friendly Dealer Franchise, which is mutually profitable. And remember, our stake is in oil heating . . . we'll go all-out to help you compete with other types of heating.

Write today for full details on this profitable Fluid Heat Dealer Franchise. It doesn't cost a thing . . . and it can pay you big dividends. Address: Fluid Heat Division, Anchor Post Products, Inc., 6720 Eastern Ave., Baltimore 24, Maryland.

fluid heat

PRODUCTS

"WORLD'S ECONOMY CHAMPION"

Manufactured by the Anchor Post Products, Inc.
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4 Pressure Burners

Firing rates from
7/10 to 12
gallons per hour



6 Boiler Burner Units

Capacities from 475
to 840 sq. ft. of
standing hot water



7 Vertical Rotary Burners

Firing rates from
1/2 to 6
gallons per hour



3 Air Conditioning Furnaces

From 120,000 to
200,000
BTU per hour

Routine Inspection shows

COPPER WORK

"in Very Good Condition"

Reports Buffalo Statler

"A RECENT INSPECTION of the Buffalo roof shows the Anaconda Copper in very good condition," says Mr. Harold B. Callis, Vice President of the Hotels Statler Co., Inc., "and confirms our judgment in selecting this material when the hotel was built."

Famed for the quality of its service and its clientele, the Statler chain believes equally in quality materials and equipment. In over twenty years of protecting the "home house" in Buffalo, the Anaconda Copper Flashing and Roofing have required but minor structural repairs.

As building enters its postwar phase, copper is again the favored metal for roofing, flashing and exposed metal work. Whether for a great hotel, hos-



After 21 years of service the Anaconda Copper Roofing, Flashing and Panels on the Hotel Statler in Buffalo, continue to give complete protection. Sheet Metal Contractors, P. Christman & Sons Co.; Architect, George B. Post & Sons.

pital, office building or a small home, Anaconda Copper will provide enduring protection.



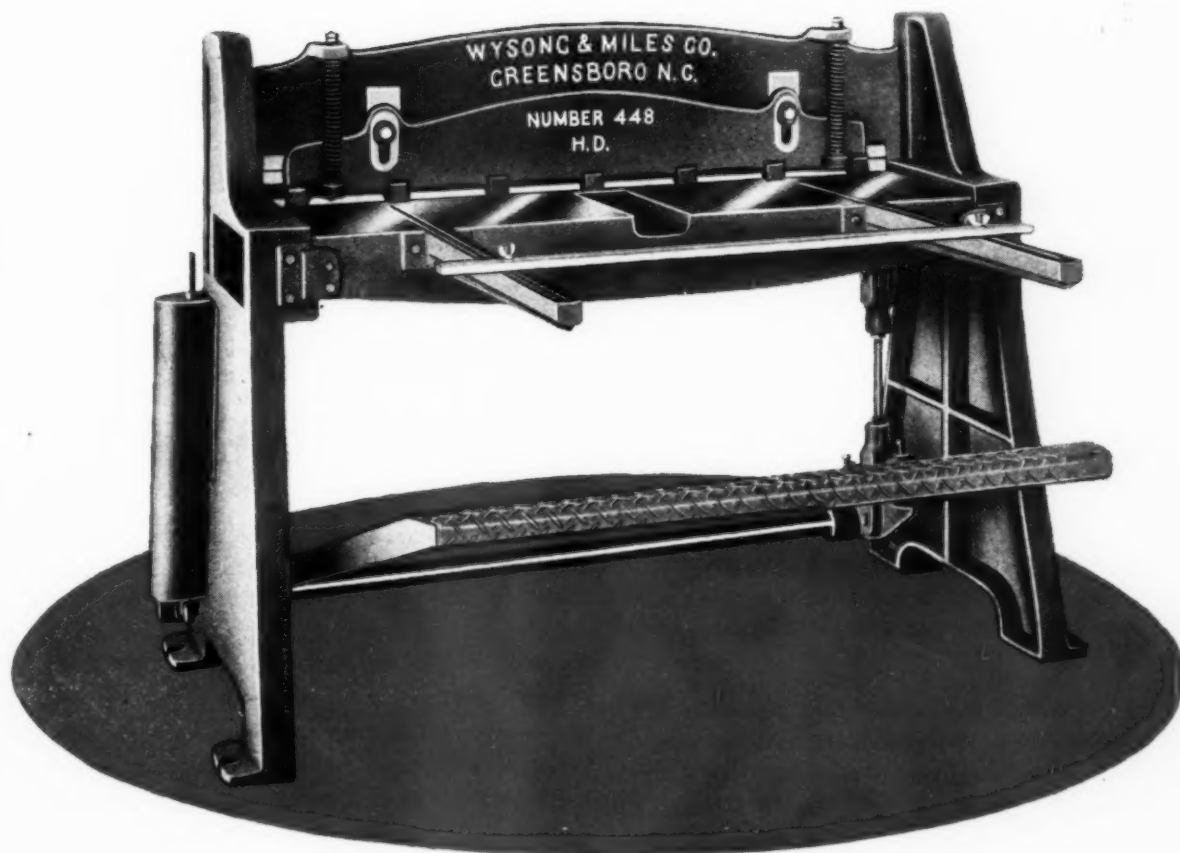
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pressure, whether operator presses middle or end. Convenient gauges...bevel gauge for angular cuts. Comes in four 16 gauge heavy duty sizes: Nos. 436HD, 442HD, 448HD, 452HD.

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GREENSBORO, NORTH CAROLINA

DESIGNERS AND BUILDERS OF MACHINE TOOLS FOR OVER 45 YEARS

Steel Shortage

Emphasizes Need for —

1. Better plant maintenance
2. More care in storing steel
3. More ingenuity in adaptation

Today's shortage points up as never before the importance of using every available pound of steel to best advantage. It's the responsibility of buyer and seller alike.

Because a machinery breakdown may necessitate replacements not readily available under present conditions, extra maintenance care is essential. Regular painting of exposed surfaces and thorough lubrication of working parts will often prolong the useful life of plant property and equipment considerably.

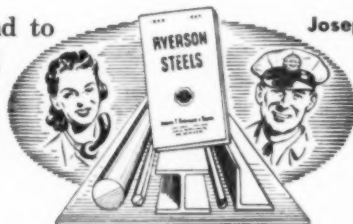
Industry can cooperate by more careful storage and handling of its steel inventories. Many manufacturers have some steel on hand, but inadequate protection and poor handling facilities may cause deterioration and sometimes the stocks are not in satisfactory condition when needed.

Ingenuity in adapting steel on hand to needs of the moment is a third essential today. Steel buyers can help by specifying cut size on orders for stock

lengths, allowing steel-service plants to draw on their inventory of shorts. And the steel warehouse itself can make wide use of adaptation. For example, Ryerson plants continue to carry fair stocks but orders for popular sizes of many products are so numerous that the demand cannot always be met. When this happens, we can often suggest alternate kinds or sizes to do the job. An alloy bar replaces a carbon bar. Two angles form a square tube. In one way or another we may be able to help keep production moving despite the steel shortage.

Our organization is constantly on the watch for ways to make the available steel supply useful to more customers. We promise no miracles, but we will certainly do everything in our power to serve you when you call.

Joseph T. Ryerson & Son, Inc. Steel-Service Plants at:
New York, Boston, Philadelphia, Detroit,
Cincinnati, Cleveland, Pittsburgh, Buffalo,
Chicago, Milwaukee, St. Louis, Los Angeles.



RYERSON STEEL



Some Things To Watch For in the Next 60 Days

UNLESS Washington does another unannounced and unpredictable about face, certain developments are "on the fire" and should be watched by our industry during November.

It would seem that there is now some likelihood of CPA as well as OPA going completely out of business by the end of 1946. The entire CPA program, in the last eight weeks, has been focused on two main objectives—protection of the Veteran Housing Program and allocation of scarce materials. CPA can turn operation of both these over to VHP and thus make Mr. Wyatt completely responsible for the success or failure of the housing program.

OPA has been issuing day after day long lists of products de-controlled—now only rents, and some foods are under price control. These can be turned over to some other agency if OPA is killed.

At the same time that killing CPA and OPA is being seriously discussed in Washington, certain other important moves are under consideration:

(1) The Warm Air Furnace Industry Advisory Committee has recommended to CPA that the cost limitation (\$200 for supplies) for emergency repairs be—(1) either removed completely or (2) the limitation be changed to \$50 per room. CPA is considering this.

(2) The Warm Air Furnace Industry Advisory Committee had also recommended to CPA that certified orders from home owners or heating contractors to furnace suppliers for fractional horsepower motors be given high priority where furnaces without motors were installed. CPA accepted this and issued Direction No. 14 to PR-33, effective Nov. 5 to permit such certification.

In this connection it is interesting to note that production of fractional horsepower motors in September and October did not increase over August and the backlog of unfilled orders now amounts to some 38 million dollars, or 21 months production.

(3) The Plumbing and Heating Distributors Industry Advisory Committee has recommended to CPA that the indefinite set-aside for furnaces in Schedule B of PR 33 be revised to specify *only 21 days* set-aside period after which furnaces may be sold to anyone with or without priority. CPA is considering this.

(4) CPA has revised its inventory restrictions on asphalt and tarred roofing products. Users may now have on hand only a 30-day inventory in place of the 45-day inventory permitted before October 31.

(5) CPA has also issued PR-5, Amendment No. 1 which grants priority assistance up to \$1500 (\$200 for parts or products) to home owners for emergency repairs. Application is to local FHA offices on NHA Form 14-56 or 14-92.

It is being freely predicted in Washington that the Veteran Housing Program will be drastically altered within a period of weeks. The program is now in a muddle with thousands of houses standing partly finished. Instead of working to get these houses completed, Mr. Wyatt is putting his energies on lending 100 per cent of the cost to start new type prefabricators in business and get more "starts" started. Unless VHP is re-studied it probably will happen that:

(1) Steel will be even harder to get in 1947 than in 1946 for everyone except those engaged in housing. Industrial and commercial construction and remodeling, repair and modernization will come to a standstill in 1947.

There is a growing feeling throughout the country that VHP has hogged much more stuff than can possibly be used in VHP—certainly in 1946; probably in 1947. For instance, furnaces. Under VHP 75 per cent of all furnace production must be set aside (at the jobbers level) for veteran housing. Only within the last two weeks has VHP acknowledged that there is a replacement need and freed the larger sized furnaces.

But this is not enough because manufacturers in applying for allocations of materials to make furnaces are getting priority help for only those sizes of furnaces specified for veteran housing. Without priority help, a manufacturer doesn't stand much chance of getting materials for replacement furnaces.

The whole set-aside order is promulgated on the program of building 2,700,000 houses by the end of 1947—and this program is definitely impossible.

With building costs up two thirds higher than before the war and with building materials and products up 50 per cent and with the dollar worth only 69 cents of its pre-war value we have a situation which legislation cannot solve. Seemingly only a completely uncontrolled market (come boom or bust) can get housing into some workable channel.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Arnold Kruckman's

Washington Letter

★ ★ ★ ★ ★ ★ ★ ★ ★ ★



Confusion Rules the Steel Picture

A MANUFACTURER of furnaces came out of the West the other day to find out why he had so much trouble in getting steel despite all the imposing and impressive priorities issued by Wyatt, and the dissolving regulations which have streamed out of CPA with the effect of swiftly increasing bewilderment among the members of the national economy. The man from the West went home just as steel-poor as he was when he left there, but he had a budget of knowledge which he is now trying to sort into something that may make the situation clearer to him. Possibly there are other furnace makers and manufacturers who use sheet steel, who may be able to make some sense out of the information gathered by their colleague. For what it is worth, some of the facts and fancies are deployed here.

Some Warehouses Bulge

In the Mid-West he found a substantial number of warehouses filled to bursting with steel sheets. The operators, however, said they could not sell the steel because it was held as a reserve for the automotive industries, except for a small residuum which they held for their own special customers. The visitor did not tell the warehouse people but he told this reporter he thought they were "damned liars" because he had been told by automotive people whom he knew well that they were having much difficulty in getting all the sheets they needed from the mills, and that they had no reserves in warehouses or anywhere else for which reason they were closing down. The Briggs Manufacturing Co., which makes automobile bodies, told him they had been compelled to lay off 7,000 workers because they were able to obtain only an average of 58% of their normal needs in steel sheets. He assumed there were no shenanigans about this explanation because he found that a Chrysler plant was on the verge of shutting down for lack of bodies and other parts, as was one or more of the General Motors plants. It was demonstrated to his satisfaction that 64 suppliers of General Motors had closed down for lack of steel, and because of strikes which naturally further squeezed the pipelines upon which General Motors depended. At Willys Overland he found that 2,000 workers were laid off because the plant could not obtain springs. As he poked around the industrial East he discovered that the lack of steel has blocked the construction of badly needed factories certified for construction by Wyatt, also laboratories, urgently needed chemical equipment, and electrical equip-

ment required for steel furnaces and for the steel mills themselves. He was told that the \$16,000,000 project of the National Dairy Products Corporation to build a factory, to produce ice cream, cheese and other milk products, had been cancelled for lack of steel, and that the Standard Oil of California had, for the same reason, abandoned various extensions. General Motors had reduced its \$600,000,000 expansion program to \$100,000,000, and then, because there was no steel available, had dropped the whole program. Both in the West and in the East he found tractors and trucks piled up in the factories for lack of steel to make essential integral parts, and busses which could not go into service because they were short radiator shutters and similar parts. In one place he found filtration machines which had stood useless on the factory floor for five months for lack of key parts, such as steel and copper fittings. In another place idle new freight cars could not be put into use because steel parts were absent. Meanwhile, he had been told elsewhere that in November the railroads would be short 75,000 cars to move desperately essential materials, and that the shortage inevitably meant, after Thanksgiving, a number of plants would have to shut down for lack of the freight the 75,000 cars would not bring. He found incomplete heavy lifts, trailers, valves, and farm machinery, which needed more steel parts, and punch presses which could not be finished for the same reason, and the lack of this material over a period of 5 or 6 months, had closed a number of smaller plants.

Why Export Scarce Materials?

The western furnace maker, like this reporter, has never been able to understand why the raw material, iron ore, is so scarce in this country with its presumably abundant supply; and why pig iron is so short that the automobile people announced the other day they no longer could depend upon the domestic supply, but that they obtained the bulk of their pig iron, copper, and lead by importing it from abroad. At the same time there is the extremely puzzling and irrefutably authenticated fact that we are *exporting* steel in various forms and shapes. Apparently the Good Neighbor policy is not based upon the parallel philosophy enunciated in the Bible that "Charity begins at home" The lack of pig iron is attributed to the lack of blast furnaces. During the war a number of blast furnaces were built and subsidized by the Federal Government. After VJ-Day they were closed. The steel industry

earnestly tells you the lack of these subsidized blast furnaces has depressingly restricted steel production. But they do not explain how they operated without the Government-subsidized furnaces before the war. Late in October, War Assets Administration came into the picture, jointly with Wyatt, and leased one of the idle Government blast furnaces at Gadsden, Alabama, to the Republic Steel Corporation, which will use the facility to produce 20,000 tons pig iron per month. This subsidized operation is supported by the \$400,000,000 fund under control of Wyatt to expand in premium payments to expedite the veterans housing program. The Republic Steel Corporation will receive incentive payment of \$12 a ton on its entire shipments of foundry and malleable pig iron. Producers of cast iron soil pipe, pipe fittings, and castings for warm air furnaces and other domestic furnaces, will receive the pig iron as swiftly as it is made available. In announcing the Gadsden deal Wyatt also said that other Government-owned blast furnaces will be opened immediately. Several operating blast furnace plants already are participating in the premium payments at the rate of \$8 per ton; only plants which reopen are eligible for the \$12 tonnage premium.

Supplies May Boom

There would seem to be foundation for the hope that warm air furnace manufactures and other users of sheet steel and strip, hot or cold rolled, may expect a more liberal supply of steel when all these facilities pour out their product. Bearing in mind the product must go practically altogether to the production of furnaces and facilities for installation in veterans' housing, it would be a wise move if the industry could do something about keeping abreast of the movement of that pig iron, from the furnace to the ultimate manufacturer. The proceedings of Government are so subtle, and so intricate, and so complicated, that it is very easy for any part of this output to get tangled and go awry when it leaves the mills, and wind up in Canada, or in South America, or even in Yugoslavia or Russia. We hear weird and curious lore about the handling of Government-controlled or Government-owned property as it passes through the tortuous processing of such as agencies like War Assets Administration. You will definitely not find it easy to obtain things through War Assets Administration. It now has 33 regional offices, and the chief urgency of the Washington office is to decentralize so completely that it cannot be held responsible for anything, no matter how many investigations may occur in the future. The net result of the decentralization is that Maj.-Gen. Robert M. Littlejohn chiefly is engaged on a very fine job of promoting public relations for WAA, and also publicity for the War Administrator Robert M. Littlejohn. The extent of this publicity mill can be gauged by a count of the "releases" which came to this reporter in an average mail, an hour ago. There were twenty different pieces of ballyhoo, mimeographed on probably forty sheets of heavy paper. Each separate piece of hoopla has the name of Littlejohn in the first line.

Small Business Popular Now

Small business comes in for the presently fashionable emphasis. It is currently smart in Washington to make a flourish about Small Business. There is a discussion of \$350,000,000 worth of machine tools; and about a technique of "freezing" for the 33 regional offices. Real Estate comes in for a disquisition in relation to what might be good for Uncle Sam. Electronic materials, "sales at site," the volume of Surplus sold, steel landing mats, induction heating, aluminum ingots, uniforms, aircraft plants, mobile power plants, and steel, are among the subjects Gen. Littlejohn links with his name. And so it goes; but our Western furnace visitor did not find that it went anywhere near a place or a discussion which might lead him to a real supply of steel. The "released" discussion

made it appear that about all you had to do was walk up to the counter with your priority certificate and a check and take away your steel. But in practice he found they knew next to nothing about the whereabouts of any surplus steel, and that he would be obliged to shop around among the 33 regional offices to attempt to run down the various lots which occasionally were bulletined in the announcements broadcast by each of the 33. Obviously, although he had a veteran's priority in addition to the housing priority, he could not qualify for the preferences that might speed the requirements of, say, a Government such as Yugoslavia; and he learned that by the time he caught up with the person or persons who supervised the distribution of the steel wherever it might be, it had invariably been procured by a higher and luckier priority-holder. The confusion was so exasperating that even officials in WAA told him, off the record, that things were even worse than they had been under previous administrations; that decentralization has so thoroughly decentralized, that Inventory is merely a nine-letter word in the dictionary.

Washington Fable

There is illuminating point to an incident a friend told this reporter. He was at one time chief of something connected with War Surplus. While visiting his home in a mid-Western State his nephew took him for a ride along a road in the neighborhood. On either side of the road for several miles there were warehouses which stretched back the depth of two or three buildings. He asked his nephew what they were. The nephew wonderingly explained they were structures which sheltered Government Surplus which were part of the property which came under the supervision of the Uncle. The Uncle was dumbfounded. He had never heard of this particular reservoir of Surplus. He found the buildings were filled with useful machines and articles, guarded by watchmen. The then existing responsible regional office was aware of the property and its location. But apparently it had no further knowledge, nor did it have any idea what was to be done about it. It was none of their business to "stick their necks out" for trouble by prodding any of those above them with embarrassing questions. When the Uncle returned to his office in the Capital he sought to find the records in his files. There were no records. After several weeks, and much persistent digging and prodding, he reached the building in an obscure part of Washington where the discarded files were entombed. Here after much dusty and perspiring exhumation, he found the files. Apparently the muddled mess was one of those incidents which were bound to happen in connection with the "distortions"—a new word current and loved by Government thinkers—that are inevitable in any operation like the stupendous and hasty business of War, which naturally moved so fast that it will take years to retrace steps to things and matters that were left behind. There is truly nothing sinister nor dishonest about this incident. It is just one of the costs of the waste when an organization is so complex and so gigantic as is the Government of the United States, especially in war time. It is a symptom of what is wrong, and what should be corrected, but which no one has yet found a way to remedy. The same official had occasion to find a warehouse under his jurisdiction. Everybody knew it was located in a certain State, but no one knew exactly where. After weeks of poking and searching around in highways and byways the persistent official found the warehouse in a remote place where it would probably have been forgotten and fallen to ruin until some later plodding and insistent official ran it down.

The word in the Capital now is that the muddle of WAA soon may be turned over to the Army and Navy for administration. Three or four Army men have had the responsibility of administration the past two years; but they functioned as

(Continued on Page 136)

NEWS SUMMARY OF THE MONTH

Emergency Repairs

AT present, priority assistance may be obtained by a contractor for emergency repair heating supplies necessary by applying to local FHA offices, by an amendment to Housing Expediter Priorities Regulation 5, effective October 1.

The Plumbing and Heating Industry Advisory Committee has said that this requirement is impractical, and suggested that NHA amend its regulations to permit a heating contractor to "self-certify" to the emergency need and obtain required materials from his supplier on an HH rating. This suggested procedure would be similar to the MRO (maintenance, repair and operating supplies) certification procedure under the War Production Board's Order P-84 during the war.

The committee's recommendation for self-certification for repair work was an alternative to its suggestion that the percentages of materials required to be set aside indefinitely for rated orders under Schedule B to Priorities Regulation 33 were too high to allow sufficient materials for emergency repair, and should be reduced. The committee was told that as soon as the production of building materials has increased sufficiently, the set-aside percentages would be cut.

Oil Burner Transformers

ON the basis of information which is coming to the surface says Oil Heat Institute a critical situation is developing in transformers.

It seems that a lot of shopping has been done by dealers

and others and that motors and transformers have been picked up in the field,—channeled into dealers' hands,—dealers then instruct their manufacturer sources to ship burners, less the transformer or motor or both, the dealer agreeing to complete the burner. This practice in some cases results in uncompleted installation.

It is difficult to determine how many incomplete burners have thus come out of the manufacturers' plants, but the probabilities are indicated by the Bureau of Census reports that not less than 228,000 oil burner units were shipped by manufacturers in the first seven months of this year. Washington insists that transformer production lags behind that figure, by not less than 80,000. OHI says the Bureau of Census reports may be 15% short of the actual total burners produced, the Bureau has no record of the many new manufacturers in the field. It is, therefore, indicative that the shortage of transformers exceeds the 80,000 figure to possibly a very considerable extent. There is also evidence that the supply of transformers is being exhausted in the field.

Watch Your Tax Reports

WITH its quota of agents now up to 8,000, Treasury has started the most intensive audit of small and medium sized businesses ever undertaken. A campaign is now on in New York to examine all returns from smaller corporations and partnerships—a group which practically escaped all examination in late years. The results so far are a bonanza for the Treasury. Treasury now plans to place its agents throughout the country to concentrate on small taxpayers.

Unit Air Conditioners Awarded Our Trade

American Artisan:

Enclosed please find copy of ruling with reference to A.C. units.

In the future sheet metal workers will refuse to connect duct work to any unit which has not been hung or erected by members of the Sheet Metal Workers' Union Local No. 73 (Chicago). Also the Union will take appropriate action against any Sheet Metal employer or member who by carelessness, indifference, or by compromise or conniving, yields parts of our work to any contestant trade or causes the sheet metal workers to suffer the loss of any integral part of heating or ventilating Units, including the coil, fan, filter, dampers, etc., all of which have been legally awarded by arbitration to Sheet Metal Workers' Union No. 73 by the Joint Conference Board of the Building Construction Employers Association and Building and Construction Trades Council of Chicago, in session October 10th., 1946.

Yours very truly,

James W. Close, President

James D. Ryan, Secretary-Treasurer
SMWU, Local 73

The ruling is as follows:

October 10, 1946

Sheet Metal Workers Union, Local No. 73
Chicago, Illinois
Gentlemen:

Please be advised that at a meeting of the Joint Conference Board held this afternoon the following decision was announced:

"In the matter of dispute between the Sheet Metal Workers Union, Local No. 73, and the Pipe Fitters Association, Local No. 597 concerning the installation of heating and ventilating units in the ventilation system being installed at the building of the Cadillac Motor Car Co., at Ontario Street and Wabash Avenue, and the installation of similar units being installed on the building of the Corn Products Refining Co., at Argo, Illinois, it is the decision of the Joint Conference Board that on these two jobs where units are installed with sheet metal ducts leading to and from them, the work shall be done by the members of the Sheet Metal Workers Union."

Yours very truly

H. M. Stanton (Signed)
Secretary

End of Price Inflation in 1947

GENERAL commodity prices will reach a peak and turn downward in 1947 in the opinion of a majority of 72 nongovernment economists participating in a survey conducted by F. W. Dodge Corporation. The group polled includes economic consultants and economists connected with business corporations, financial institutions, universities and economic research organizations.

Fifty-three expected the peak to occur and the general price recession to start before the end of 1947, one expected it within eighteen months, while twelve expected it after the end of 1947.

All but three of the economists who expect a price recession before the end of 1947 anticipated the downswing in commodity prices to be accompanied by a recession in business activity, though only one of the fifty expects such business recession to assume serious proportions. Twenty-three of them characterize the coming recession as "mild," twenty-four of them as "moderately serious." A majority (twenty-eight of the fifty-three) do not expect serious unemployment; nine expect unemployment of moderate seriousness and twelve expect serious unemployment. About half expect buyers' strikes, and about two-thirds expect inventory troubles and reduced business profits.

Aluminum Production

AS of the third quarter, aluminum production appears sufficient to meet all demands even though more will be used in 1947 and 1948 than ever before. Increased production here plus Canadian production, is expected to do the trick.

Present domestic production is at the rate of 1.4 billion pounds a year compared with pre-war 325,000,000 pounds. Reynolds Metal Company is opening a new mill with 240 million pounds capacity and the government has five plants which can produce if necessary. Canada can produce at a rate of one billion pounds per year, much of which can come into the U. S.

Current U. S. consumption is at a rate of 1.65 billion pounds per year which will be increased by use of aluminum for prefabricated houses Wyatt has recently certified for manufacture and guaranteed sale by government.

Purchases and Income

THE recently issued Federal Reserve Board's survey of expected spending and saving offers some interesting data. According to this study, consumers were ready to spend in 1946 some 4.0 to 5.5 billion dollars for automobiles and another 3.2 to 4.0 billions for such durables as refrigerators, furnaces, washing machines, etc., if the goods were available. With production lagging it now seems doubtful if even one half to two thirds of these sums can be spent.

The study also reveals that (1) three out of five prospective buyers have incomes of less than \$3000; (2) two out of five have less than \$500 in liquid holdings; (3) only a sixth expected to spend \$500 or more for durables other than cars;

(4) with less than \$500 to spend for durables the consumer is going to have to buy by time payment.

The report also shows that between 13 and 15 billions were to be spent for housing. The average prospective owner planned to spend only about \$5000 for his house. Only one third expected to spend more than \$6000; while another third expected to spend less than \$4000. With house prices where they are and going up, housing may be slipping out of the grasp of these buyers.

At this rate all industries may soon be fighting for the consumers dollar—not that he doesn't want a new furnace but that he can't afford it.

No Trend From Basements

A SURVEY made among 4,900 families planning to build a new home for their own occupancy by the magazine *Better Homes and Gardens*, indicates there is no particular trend away from basements. In reporting the results of its survey, this magazine said:

"The percentage of families planning homes with basements remains the same as in the prewar period. If there is a change in the future it will be towards fewer 'basementless' houses as 19 per cent reported they now lived in 'basementless' homes while only 13 per cent said they would build one.

"As might be expected, fewer basements exist and fewer will be built in the Pacific and West South Central States than in the North and East. But all geographical regions in which, before the war, less than three-fourths of these families had basements, the percentage with basements will increase. At the same time, in all regions in which more than three-fourths have them, the percentage with basements will decrease. Those who have 'basementless' homes see a need for a basement. Those with basements are going to give 'basementless' homes a try."

The following percentages are based on the families covered in the survey which answered the questions asked about basements:

	Prewar	Future
Full Basements	66%	66%
Half Basements	14%	14%
No Basement	19%	13%
Don't Know	1%	7%

Surplus Welding Equipment

WAR Assets Administration has advised the Resistance Welder Manufacturers Advisory Committee that more than 1,900 welders, which cost \$10,000,000 new, have been turned over to 14 regional offices for disposal and that more such equipment undoubtedly will be declared surplus by agencies which acquired it during the war.

Manufacturers' representatives declare that the manufacturers of this equipment are in the best position to sell it to private industry, and they advised that the disposal could be accomplished rapidly, but they declare that WAA must allow sufficient profit to make the disposal worth the manufacturer's while.

The committee recommended that a wholesale price on this equipment be established for the manufacturers, in order that they might purchase the equipment at a mark-down, recondition it, and sell it with a guarantee.

COLLECTION ANALYSIS CHART

Monthly Summary of Past Due Accounts

Customer's Name	*Inst. or OA.	1-30 days	30-60 days	60-90 days	Over 4 mos.	Suits	Judg- ments	Bad debts	Legal costs	Total

*Installment or open account past due.

check-up, and is filed in the dead file, thus, preventing another follow-up. Dunning a customer who has already paid all or part of a bill creates unpleasantness and it sometimes happens where past accounts run high and an inefficient collection system is in use. Once a card goes to the dead file it remains there until a customer becomes delinquent again on subsequent business.

Make Analysis Periodically

The dealer or contractor cannot get a good perspective of his collection efficiency unless he compiles a monthly analysis chart showing past due accounts according to age, bad debts written off, etc. This gives a bird's-eye view of collection progress and total past due outstandings. Many businessmen lose money, even though they write collection letters promptly

DEAR SIR:

If you happened to be in China on New Year's Day and saw a man walking around with a red lantern, you would know that he owed debts that were unpaid because in some parts of China it is the practice of all debtors to settle up their debts by the end of the year otherwise they must advertise their delinquency with a red lantern. This, to Occidental minds, may seem out of bounds, but we must admit that the Chinese custom of settling all indebtedness by the end of each year is commendable even if a red lantern is not brought into the picture.

You owe us \$_____. We also owe bills. We want to follow the old Chinese custom and settle our bills by the end of the year. But before we can pay what we owe, we must collect what is owing us. Why not give us a Chinaman's chance to pay our bills by sending us a check for what you owe us?

Happy New Year!

because they do not have an over-all picture of past due accounts every month or so. Assets are inflated because many listings under accounts receivable are really bad debts and should be written off. Monthly scrutiny, or, at least quarterly, by means of a collection analysis chart, provides opportunity for quick visualization of all past due accounts; hence, prevents undue delay in taking action on delinquents and tells

when to overhaul the credit policy and the methods used in granting credit, which sometimes grow lax.

The Collection Letter

A mighty important business tool. Poor collection letters can wreck a good collection system. The effective collection letter gets the money and keeps the customer. Here are eight rules for writing the collection letter right.

1. The short letter suggests immediate action. The long letter implies delay. Except in unusual cases, keep the wording to 15 lines or less. Many collection letters analyzed

DEAR SIR:

You appreciate the injury to your personal pride, to your credit, to your social standing and to your business reputation to have a just account against you collected by law. We do not want to injure you with court procedure, but we have a just claim and no one can criticize our insistence upon prompt settlement.

We want to keep away from lawyers, if possible. So, before placing your account for collection, we will wait 10 days for a check.

by us were found to say the same thing in a different way too often, unnecessarily increasing the length and weakening the appeal.

2. Pack no dynamite into wordage. Even when you threaten to sue, say it with courtesy and dignity.

3. If a debtor cannot pay immediately, get definite assurance when he can pay. Research shows that when a debtor is given an opportunity to set his own date of payment, in 80 per cent of the cases, he pays. Where debtors make indefinite commitments, they pay in less than 30 per cent of the cases.

4. Try to get the reason for non-payment. Next to collecting, the important thing is to know why you can't collect. This knowledge provides an opportunity for some arrangement toward eventual settlement. Induce the debtor to contact you even though you cannot collect right now.

5. Personalize your collection letters. In many cases, the

creditor knows his customers well enough to write friendly letters that fit the case, instead of stilted type promises with cold business-like phraseology. Use more of the conversational style of address with customers you know. Inject cheerfulness, humor, news value and timely interest, whenever in good taste. A collection letter with some human interest in its make-up is read, and in most instances, it produces less negative reaction than a colorless message.

6. Use the "you" appeal so effective in salesmanship. The desirability of a good credit standing in the community, the injury to personal pride, social standing and business reputation through credit delinquency, are some of the "you" appeals that speed up collections. Without threatening, get across to the debtor the idea that he, instead of you, benefits by paying.

7. Be sparing with trick wordage, or stunt letters. The trick letter may work out well with direct-mail sales promotion but it is usually a dud on collections. If used, it should be printed. Then the recipient feels that he is not

they were good money-getters. The ordinary "Please remit" is harsh on the sensibilities. These duns are easier on the eyes than the stereotyped "Please remit."

Timely appeal lends human interest to a collection letter. Timeliness can cover anything from a seasonal appeal to an event of national importance although it is obviously desirable to keep away from any subject that may develop controversy. The "Chinese" letter got results for a merchant who mailed out collection letters in December.

Tact is Superior to Trickery

Like the trick approach in salesmanship, trick wording in a collection letter often boomerangs. People resent being fooled, even though they owe bills unless the letter is tactfully handled. Some businessmen have had success with trick letters enclosing pins with the suggestion, "Pin your check to this letter and mail." Others enclosed a string so that recipients could "tie this string around your finger so that you do not forget to mail us a check for the past due account."

DEAR SIR:

It is said that an elephant never forgets. Give one a chew of tobacco and you might as well commit suicide as visit that elephant again. Unfortunately, folks do not have elephantine memories. We forget a lot of things. You have forgotten to remit for your past due accounts with us and now that we have jogged your memory, we hope you will send a check.

DEAR SIR:

We deserve a check of some kind. If not a bank check, at least a pencil check in one of the spaces below.

- ☐ I mailed you check yesterday.
- ☐ Will mail you check on _____.
- ☐ Here is part of it, showing my good intentions.
- ☐ I enclose amount in full.
- ☐ I am writing reasons for non-payment on the reverse side.

DEAR SIR:

It is our aim to supply topflight materials and workmanship at rock-bottom prices, but we cannot continue these excellent values if our overhead is unduly burdened with heavy collection expense. By paying us promptly, you can save yourself money on any future business given us because we can continue to quote prices that represent maximum value for the money.

DEAR SIR:

Busy people sometimes overlook settlement of past due accounts. Your account with us will be off your mind if you send your check today.

being singled out as the only zany to be fooled by the verbal legerdemain. A few trick letters get results on collections but they must be handled with care.

8. Use form letters with discrimination. Some businessmen buy stock form letters and use them on all cases. Such letters are not always flexible enough to fit every case. Analyze a delinquent account carefully, then write the letter that fits the case. Get away from multigraphed form letters as much as possible. However, many businessmen, to save time, prepare a series of collection letters and have them specially typed to fit the case but even here, in some instances, special letters must be written to get best results.

Some Effective Letters

In our field contacts, we have examined many collection letters and present the specimens in the "Letter Box" because

Debtors consider a tricky letter too smart-alecky and take an, "I'll pay when I get good and ready" attitude.

You will notice that all letters printed assume that the customer's credit is good and infer that payment of the account is expected at any moment, they sound natural, which is essential for all business letters, they are short, may be individually typed quickly and economically or written in longhand. Some businessmen write all collection letters in longhand because they think it gives that desirable personal touch. Form letters lack this essential and another disadvantage is that they cannot be used over again if the same customer becomes delinquent on a subsequent bill of goods.

In general, a series of 6 letters is considered sufficient before suit or other drastic action. A prolonged series is like too long a letter, indicates vacillation on the part of the creditor and induces the debtor to equal indecision on payment, even if the letters are well constructed.

Sheet Steel Distributors 36th Semi-Annual Convention

THE 36th Semi-annual meeting of the National Association of Sheet Metal Distributors, held in Atlantic City, October 15 drew the largest attendance ever accorded such a meeting.

Despite the fact that such far reaching regulations as Schedule B of PR 33 are still in operation, the meeting cut short most of the usual discussion of regulations because it seemed to be the feeling that government regulation will be increasingly unimportant. So the assembly devoted its attention to problems of the jobbing business.

The discussion on aluminum sheets indicated that use of aluminum is increasing steadily as a replacement for unavailable black and galvanized sheets. Also that the aluminum sheet producers seem at the moment inclined to fabricate into building products much of their own sheet production rather than selling sheets to fabricators and product manufacturers.

There was considerable debate among members on the aid the organization might give National Tax Equalization Committee in its fight against the unfair competitive situation created by laws which give tax exemption to cooperatives. The association will consider aids at future meetings.

W. W. French, Moore-Handley Hardware Co., leading the discussion on sheet handling methods, related his company's experiments in purchasing sheets in gondola cars and the methods used to get the sheets out of the cars and into storage.

OFFICERS

President A. M. Vorys
Vorys Brothers, Inc., Columbus, O.

Vice President . . O. F. Murphy
Lyon, Conklin & Co., Baltimore

Vice President . . John P. Speck
Tiffin Art Metal Co., Tiffin, O.

EXECUTIVE COMMITTEE (To serve until 1949)

Paul M. McKenney
Conklin Tin Plate & Metal Co.,
Atlanta, Ga.

Lee J. Haines
E. E. Souther Iron Co.,
St. Louis, Mo.

Arthur M. Vorys, in his president's address, reminded members that conditions are sometimes not as bad as they seem—for instance, his own firm has more unfilled wants than ever before, but also has received more merchandise than ever before. He also reported that after careful consideration it was decided that the committee appointed at the last meeting to call on OPA and CPA to secure a larger supply of sheets should not go to Washington because the jobbers seemed to be doing a pretty fair job of distributing receipts and each jobber, working individually on his sources of supply, probably can get more sheets than can a committee putting pressure on government.

The only trouble, said Mr. Vorys, is that other groups move heaven and earth to put pressure on Washington, eventually they are given a priority and upset all normal distribution.

President Vorys stated he felt much cooperative work must be done in the next few months by sheet distributors with their sources of supply in order that: (1) new mill salesmen can learn to understand the jobbers' problems; (2) there must be a lessening and an equalizing of taxes between industries; (3) there must begin to be some uniformity in cash discounts or jobbers will lose much money; (4) the industry must unite to fight the black market in sheets and must work to prevent a runaway inflation. Jobbers should, he declared, make every effort to divide their receipts as equitably as possible and to sell at a reasonable price.

This meeting, as usual, was held simultaneously with the National Wholesale Hardware Association.

Going to the Show?

THE ARTISAN TELLS YOU WHERE TO GO

December Issue of AMERICAN ARTISAN will feature a Show Section that will give a complete preview of the Seventh International Heating, Ventilating and Air Conditioning Exposition (Cleveland Jan. 27-31) and also the American Society of Heating and Ventilating Engineers' Meeting and National Warm Air Heating and Air Conditioning Association Convention, which run concurrently.

Gas Furnaces and Conversion Burners Dominate AGA's 1946 Exhibit

INDICATIVE of the times and trends was the American Gas Association annual convention and exhibition in Atlantic City, October 7 to 11—it was the biggest exhibit yet staged by the gas industry; and the two topics most frequently discussed were the heavy representation (35 per cent) from the warm air heating field and the tremendous number of gas conversion burners displayed. In all 155 manufacturers displayed products at the exhibit.

Conversion Burners

As stated, the number of exhibitors of conversion burners was the talk of the show—many of these companies were unheard of a couple of years ago—they come from practically every state in the country—many obviously are opportunists hoping to capture a part of the tremendous demand for gas heat—if gossip is to be believed many are poorly financed and lacking in engineering knowledge—in short, the gas exhibit showed many of the characteristics of an oil boom or a land speculation.

Also of a boom nature were the prices quoted for conversion burners—one authority who made a quick study at the show reported that a fair average price asked for a conversion burner at the dealer level was \$130. This is slightly higher than a fair average price for a complete gas-fired gravity furnace which sells to the dealer for \$125. With a factory designed and matched gas-fired gravity furnace showing by all tests greater efficiencies and fuel savings than the average conversion burner in an existing furnace it would seem that, said this authority, the conversion burner manufacturers are in for stiff competition.

Gas Availability

All through the exhibit—in the sessions and discussions—and among the little groups, there was one topic always coming to the surface—the fear that in the coming winter the gas load will be so tremendous that distributing facilities may not be equal to the task. Undoubtedly this fear arises from the basic fact that utilities, in general, have spent little and have added little in the last six years to their distribution facilities. In fact a great many utilities have added little in the way of distribution facilities in the last twenty years.

In spite of this the utilities—up until the time of the war—were adding new house heating loads at a steadily accelerating pace and since the end of the war have added so many installations that many companies have had to issue stop orders. Others have had to stop supplying large industrial users in order to satisfy the domestic load. Still others

are examining all possible adjuncts like local sub-stations, or liquid gas sub-stations, etc. to meet the load they foresee this coming winter.

This trend to more domestic gas installations has been accelerated by the uncertainties in the home owner's mind over the supply of coal if the rumored strikes among coal miners should come to pass. And, also, many of the houses lately built are small and insulated so that the heating cost with gas is no more than and often less than the coal cost the owner has been accustomed to paying in his older and larger house.

Suburban Markets

Several of the discussions in the sessions centered around the problem of serving owners beyond the city gas mains. In the last ten years the population movement to suburban areas has been steadily growing.

So far as the gas industry is concerned, one solution to this problem is liquid petroleum gas—product of the catalytic cracking of crude oil for gasoline and, as propane, a readily handled fuel for heating, cooking, water heating. Already the service routes for “bottled gas” run out from practically every important city. Thus without too much investment in mains, gas companies can use propane as a fuel with all the advantages of gas.

It was disclosed at the meeting that some manufactured gas companies are planning to build holders for LPG rather than extend their present producing and distributing facilities. Some of these companies plan to mix propane with air to bring down the heat content of the gas from approximately 2700 Btu to about 550 Btu per cubic foot. This conforms closely with the manufactured gas previously sold.

Some companies in natural gas areas are also building holders and mixing propane with the so-called mixed gas to obtain a gas with approximately 1150 Btu content. It was reported at the convention that Cincinnati is the best present example of this practice—in Cincinnati the company is building holders which will give a reserve capacity of 52 million cubic feet of propane gas; this will be valved into mains to meet peak demands.

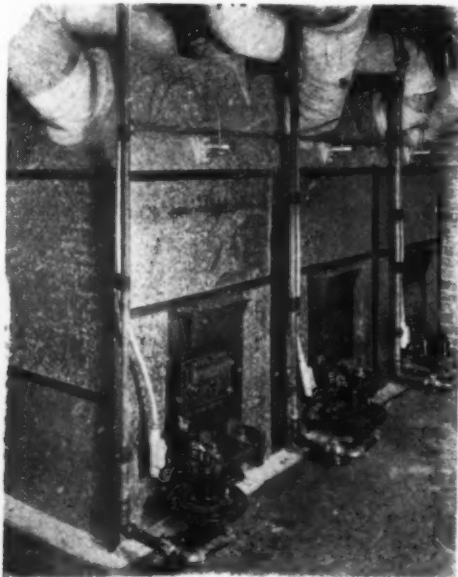
Bottled LPG

Liquid Petroleum gas is also being sold in “bottles” as a liquid under extreme pressure. These bottles are attached to piping to a furnace much as Butane has for a long time been connected to cooking stoves, etc. The problem to be answered is whether the gas companies or the petroleum companies or specialty sales companies will eventually install and supply bottled gas of this type.

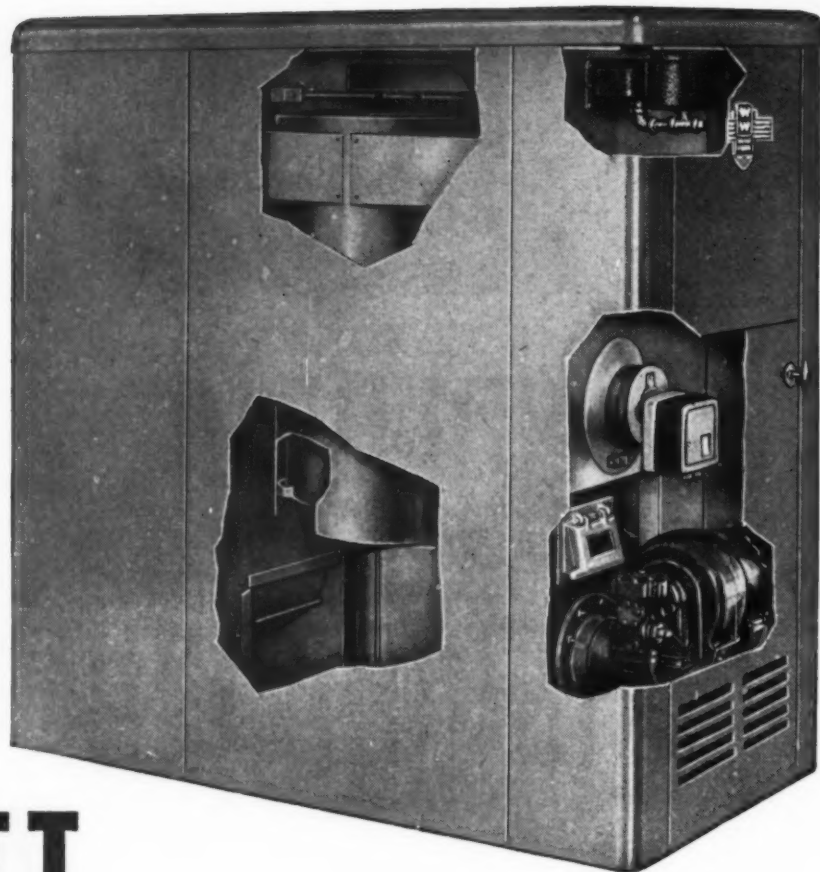
AMERICAN ARTISAN

RESIDENTIAL AIR CONDITIONING

S E C T I O N



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What's Under
the Casing
that Counts



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The Waterbury Oil Fired Air Conditioner is a modern, compact, attractive unit, economical to buy—economical to operate. It is enclosed in an eye-appealing casing that is a compliment to the most modern basement—but what is equally important to you—because of the efficiency and quality of what is **UNDER** that casing, you are saved annoying service calls.

Whether you are installing a simple gravity job or the most complete air conditioner, Waterbury's careful engineering and precision manufacturing insure a satisfied user—and freedom from service calls for you.

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THE WATERMAN-WATERBURY COMPANY

1122 Jackson St. N. E., Minneapolis, Minn.

Correct Practice In Oil Heating

Part III [*How crew is formed—Tools which are needed by each member of crew— How the work is divided among the men—Actual steps in the installation.*]

By J. J. Mirabile

Vice President of Engineering—Harold E. Sweeney Corp., Philadelphia

OVER a period of some years, new burner installation crews of two and three men have been found more satisfactory than one man or more than three men. The reason is, assuming the mechanics know their jobs, that two and three men can handle the heavy tasks; they can work without getting in one another's way; they can organize the installation so as to complete the job in the shortest number of hours. Following are some suggestions for the sequence of work of three and two man crews.

Three Man Crew

The three-man crew operates with one truck and hauls to the job the burner, controls, and the installation kit (AA, July, 1946, page 66). They carry the material into the cellar and then operate as individual mechanics. Each mechanic has his own work to do and does it unassisted. However, if one mechanic needs a hand, he asks one of the other mechanics to help him for a few minutes. For Example—After the tank is placed in the cellar, the tank man screws on the legs and then will ask one of the other mechanics to push or carry the tank into place.

The crew consists of a No. 1, No. 2, and No. 3 man. The crew leader is No. 1 man. Being the most experienced, he is responsible to the shop for a good installation. If any question arises about the location of a control, for instance he, being responsible for the job, decides where the control will be located. The No. 2 and No. 3 mechanics are responsible to the crew leader. The work is divided so each man can proceed with definite tasks. If one mechanic finishes his work before the others, he can assist on any installation difficulties which retard progress.

Each man on the crew should have his own 6-foot rule, an extension cord, two-way socket and his own personal tool box. The tools each man should have are shown on Page 78.

The shop supplies the following tools:

- 1 sledge
- 1 pipe vise
- 1—18" pipe wrench
- 1—24" wrench
- 1 copper flaring tool, $\frac{1}{4}$ " to $\frac{3}{4}$ "

- 1 copper tube cutter, $\frac{1}{4}$ " to $\frac{3}{4}$ "
 - 1 pipe cutter—2" capacity
 - 1 can of pipe dope (suitable for oil piping)
 - 1 straight spout oil can of pipe threading oil
 - 1 set of small ratchet dies, $\frac{1}{2}$ " to 1"
 - 1 set of ratchet dies, 1" to 2"
 - 1 pipe reamer, $\frac{1}{2}$ " to 2"
 - 1 large cold chisel 18" long
 - 1 bull point, $\frac{1}{4}$ " x 24" long
 - 1 wire brush for cleaning furnaces
 - 1 furnace vacuum cleaner with attachments
 - 1 rotary hack saw, 1" to 2" capacity
- The following material may be added if desired:
- 1— $\frac{1}{2}$ " electric power drill
 - 1 rotary saw, 1" to 2"
 - 1 set of drills, $\frac{1}{16}$ " to $\frac{1}{2}$ "

How Work is Assigned

As soon as all the material is in the cellar the crew leader divides the material into three separate groups and piles the groups away from where the men will work so that they won't have to step over the materials. The vise is erected where the pipe can be cut and threaded without interfering with the other men. The three groups of material are: (1) tank fittings and pipe; (2) electrical material; (3) combustion chamber material.

The work done by each mechanic is as follows: (The crew leader can be the electrician or the tank man, etc.)

No. 1 Man—The Electrician (Crew Leader in this crew): He mounts the thermostat on the wall and wires it. He does this with clean hands so that he won't dirty the wall paper. He leaves the wire neatly coiled in the basement and then proceeds to mount the relay, the limit control, the 3" x $4\frac{1}{2}$ " x 5" cut box at the meter or junction box thereby starting a separate circuit for the oil burner. He cuts the conduit and runs it from the ceiling down to the oil burner relay and then down to the oil burner. He wires all the controls, cutout box, oil burner, switch, etc. and then completes the thermostat wiring. In other words, he does the complete wiring job.

After the job is completed he, as crew leader, removes the

electrode assembly from the burner, puts in the nozzle and checks to see that it is the size specified in the installation order. He sets the electrodes, puts the electrode assembly back into the oil burner, primes the pump, and starts the job. He then adjusts the fire, checks all the controls to see that they are functioning correctly. He supervises and assists in removing all the debris made by the three men. After putting on the truck whatever material remains from the installation kit, the crew returns to the shop to unload and load on another burner, tank and kit.

No. 2 Man (the Tank Man in this Crew): With the tank in place he locates and cuts the hole in the wall to accommodate the fill and vent pipes. He cuts, threads and fits the fill

TOOLS EACH INSTALLATION MAN FURNISHES HIMSELF

- 1—tool box, approximately 24" x 10" x 8" high
- 1—8" pipe wrench
- 1—10" pipe wrench
- 1—14" pipe wrench
- 1—straight-spout oil can
- 1—adjustable hack saw frame (12")
- 1—1/2" wood chisel
- 1—14" compass saw
- 1—1 lb. claw hammer
- 1—1 lb. ball pein hammer
- 1—3 lb. blacksmith's hand hammer
- 1—center punch
- 1—3/2" screw driver—No. 6 screw slot
- 1—6" screw driver—No. 8 screw slot
- 1—8" screw driver—No. 14 screw slot
- 1—10" screw driver—No. 16 screw slot
- 1—6' folding rule
- 1—set of end wrenches
- 1—set of socket or square box wrenches
- 1—8" adjustable end wrench
- 1—8" half round bastard file
- 1—10" mill cut file
- 1—3/4" bull point chisel
- 1—5/8" x 12" star drill
- 1—1/4" x 12" star drill
- 1—1/2" cold chisel
- 1—3/4" cold chisel
- 1—pair of aviation snips
- 1—hand drill 1/4" capacity
- 1—1/2" wood bit extension (36")
- 1—bit base (ratchet type)
- 1—set of auger bits, 1/8", 1/2", 3/8", 5/8"
- 2—10" flexible—18 pt. hack saw blades
- 1—pair 7" pliers
- 1—pair 5" side cutting pliers
- 1—pair long nose pliers
- 1—line level—3" to 4" long
- 1—pointed trowel (4" to 5" blade)
- 1—20' extension cord with guard & twin lamp socket
- 15' of sash chain for fishing wire
- 1—putty knife
- 1—test lamp (110v socket—220v bulb)
- 1—double socket for extension cord

and vent line, also digs any trench necessary to protect the copper tube oil line. He screws in the tank gauge, puts the extra plug into the tank, pipes in the oil line valve, oil line filter, and runs the copper tubing over to the burner and connects it to the pump inlet. In shops where other companies supply the fuel oil, he phones for oil as soon as the tank is placed and the valve screwed on the tank. This permits him to continue with his work while the oil is en route. He does all the cementing around the fill and vent pipes, cements over the copper tube oil line and any trench which he had to cut in the cellar floor to get his oil line over to the burner. He then sweeps up whatever dirt he made, paints the tank, fill

and vent pipe, hangs the instruction card with the name and telephone number of the oil burner installer and the telephone number to call if service is required, at night.

No. 3 Man (the Combustion Chamber Man in this Crew): He cleans the furnace, smoke pipe and base of chimney. He cleans out the ash pit and removes the damper in the smoke pipe. (No dampers must be used in an oil fired installation. This does not apply to baffles built into the furnace to direct the gases away from the smoke hood.) He removes the grates, insulates the ash pit, builds the combustion chamber, sets the oil burner, builds the combustion chamber front wall and coats it with asbestos cement.

He also installs the draft regulator in the smoke pipe. If any new smoke pipe is required, he erects this with at least two sheet metal screws at each joint. He also cements the smoke pipe into the chimney opening. If the base of the furnace requires insulating, he includes this in his work. After completing this work, he seals any clean out doors that require sealing, insulates the fire door and then paints the furnace front plate. He then sweeps up any debris he made. Any one of the three men should then sweep up the cellar.

After all three men have completed their separate tasks, the crew leader calls the customer or the lady of the house into the basement for instructions and a description of the automatic features of the oil burner. The crew leader shows the customer the location of the electric switch, the relay reset button and its function, the oil valve at the tank and explains how to read the tank gauge and when to re-order oil. He carefully explains the function of each control and answers any questions the customer may ask about the installation.

In localities where degree day fuel oil deliveries are available, the crew leader instructs the customer to order oil when the tank gets down to one-quarter full and then explains that during the rest of the heating season the degree day system will bring oil as needed through the use of a constant factor set up by the fuel oil company to determine the frequency of fuel oil deliveries.

The duties described in this article cover the high points; the shop foreman may change them if he feels he can cut down the number of man hours, etc. The procedure described divides the responsibility among the three men; they know they have a job to do, they know what that job is, and they proceed to do it without orders from the installation crew leader. If the crew leader spends his time supervising and delegating various things to be done, his time is not very productive.

The Two Man Crew

A two-man crew either operates as above with their own truck or they use their own personal car. One of the men will use his car to go from job to job and will carry the vise, pipe cutting tools, wrenches, paint, furnace cement, refractory cement, wire, greenfield, copper tubing, etc. All the material included in the "kit" is delivered a day or two before the installation by the truck driver and his helper. The material is placed in the basement with the oil tank, etc. When the two men arrive on the job, they unload their tools and the materials in their car and then separate the materials in the "installation kit" into three groups as previously mentioned.

During the summer months when no heat is required, the two men may operate somewhat differently than they do during the winter months when people cannot be left without heat overnight. This, of course, depends on the time required

by two men to install the oil burner. Some shops do not use two-men crews over the winter months but use a three-man crew and finish the job in one working day. The following explains how a two-man crew can install a burner in less than 9 working hours (18 man hours).

The two men after looking over the job, will decide which phases of the work should be done with the two of them working together on the same type of work. For instance, they might not be able to work on the tank together because of a small cellar, etc. Under these conditions, one man pipes the tank, and the other mechanic builds the combustion chamber. As soon as one man completes his work (either the tank man or combustion chamber man) he starts wiring the job. The other mechanic can join him as soon as he completes the work he started.

The crew leader sets the electrodes, checks the controls, adjusts the burner, etc. He then assists in cleaning up, removing tools, etc., which they carry in their personal car. They place the remaining kit material in the three cans, also all pipe and fittings near a cellar window or door for the truck driver to pick up. They then call the customer for instructions as explained previously. After which the crew leader phones the office for the name and address of the next job. Note that he does not return to the shop.

The mechanic who furnishes his car should be paid weekly for the use of the car and the dealer should carry insurance to protect his interests if the mechanic is involved in an accident during working hours.

The truck driver and helper are notified by the office to pick up the material left in the cellar and the bookkeeper is notified to bill the job.

Area Service Man

As your burner installations increase, it is a good plan to have a service man inspect the installations. When the number of installations increases to the point where the territory must be divided into service zones, then the service man in that zone should inspect each new job and accept it as being O.K.

This will prevent his griping later that something was left undone, that the draft regulator does not work, or that the chamber is not right. After he accepts a job he cannot blame excess service calls on the installation. This definitely stops passing the buck on poor installations. Installation men respect a good service man's opinion and will be exceptionally neat and accurate in their work. This inspection is necessary as business increases because it will be impossible for you to see all jobs.

An example of a thorough installation inspection report is shown in this issue.

Local Codes

All work must, of course, be done according to local codes, the fire marshal or building inspector should be able to fur-

SERVICE MAN'S INSTALLATION REPORT

Name	Date
Address	
Type burner	Nozzle size
Type furnace	Furnace Model No.
Manufacturer	
Installation Crew	
Furnace condition	Clean
Stack condition	Clearance
Draft Regulator	Does it work free?
Tank	Oil lines
Tank gauge	Fill
Vent	Tank legs
Any leaks	Oil piping
Humidifier piping	
Switch	Fuses
Fan Fuse	Cut-out
Thermostat wire	Ground clamps
Electrical connections to house wiring	
Burner Level	Asbestos furnace front wall
Combustion chamber size	Backfill
Center of nozzle above floor of chamber	
Are cleanout doors sealed?	Overhanging location
Baffle location	Smoke pipe secure
Joists protected	
Oil motor	
Location of stack relay	
Is it secure?	
Flame (color and shape)	Stack temperature
COs	Draft over fire
Cementing	Painting
Furnace control	set at
Thermostat	Heating element
Is instruction card posted	Debris gathered up
Basement cleaned	Debris gathered up
Appearance of installation	
Suggestions	
Any property damage	
Customer instructed	
Has material been picked up?	
Installation meets with my approval	
(Service man's signature)	
Remarks	
The installation meets with my complete approval	
(Customer's signature)	

nish all the information necessary regarding permits, the distance the tank must be away from the boiler, etc. If your community does not have any local regulations, then follow the "Standards" set by the National Board of Fire Underwriters which are described in Pamphlet No. 31.

It is a wise plan to have all electrical work inspected by the National Board of Fire Underwriters. They, of course, will issue a "certificate" through their "Middle Department" which inspects all wiring pertaining to installations of oil burners. These inspectors have done much to raise standards of oil burner installation.

As a final warning, do not use any material that may save a few pennies but may bring extra service calls. It costs several dollars to send a service man out on the job to correct or service the item on which a few pennies were saved.

Make Your New Year's Resolution Now!

**Don't Miss the 1947 Directory Number
of AMERICAN ARTISAN**

THE JANUARY ISSUE YOU USE FOR 12 MONTHS

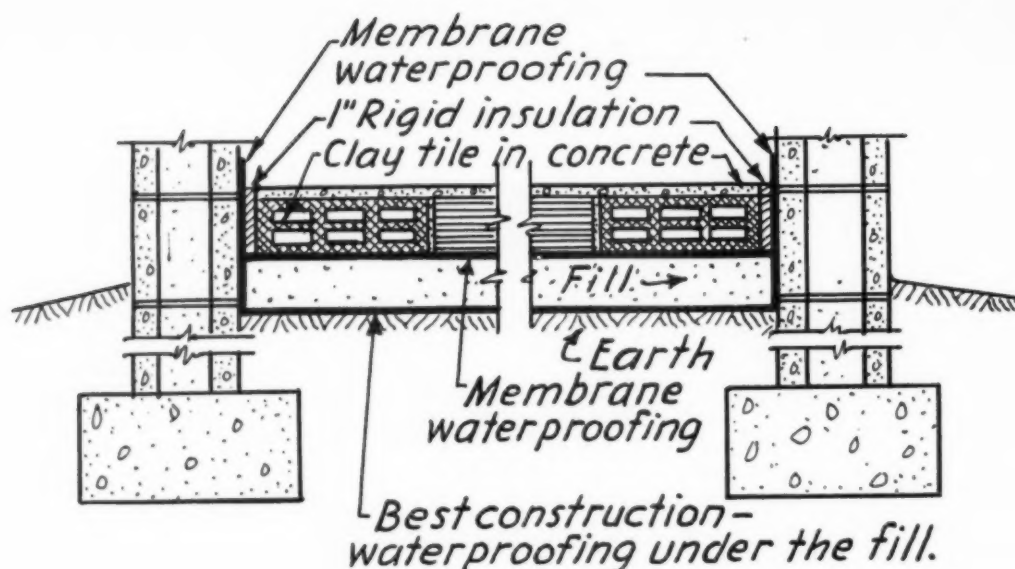


Fig. A

In Any Floor Panel System It's The "FILL" That's Important

By John E. Peterson

Our industry has now accumulated an impressive experience record for warm air floor panel heating systems. Out of the mass of data has come one fact of great importance—the panel itself, whether it be concrete, clay tile, steel or wood, combined with the character of the "fill" under the panel determines whether the house will be comfortable; whether the fuel bills will be normal; whether the floor will be cold; whether the system will be responsive to temperature change. This article describes the problem and suggests proper methods of construction.

WITH warm air floor panel heating systems being installed in communities all over the country and with at least one full heating season behind many of these systems as an experience record, the warm air heating industry now realizes that control of the flow of heat from the slab panel into the ground is a problem which requires immediate attention.

One school of engineers maintains that this flow of heat from slab to ground is a negligible quantity and that heat going into the ground is "only going into storage" to be taken back into the house at some later time. Another school of engineers maintains that this flow of heat is of large magni-

tude and, further, that most of the heat going into the ground is lost forever. This second school also points out that such heat "in storage," if such actually exists, may come back into the house at a time when it is not wanted and under some conditions cannot be properly controlled.

From tests and observations engineers have found that a floor panel slab loses heat in two directions—(1) from the perimeter through the foundation into the atmosphere, (2) from the slab directly downward into the earth under the house.

The magnitude of these losses was not appreciated when the first basementless floor slab installations were made. Those

losses from a slab were investigated by the Bureau of Standards and a report was issued. This report was published in the January and February, 1946 issues of AA. The same report, plus other investigations, shows that the loss from a slab into the ground under the house is of considerable magnitude.

Briefly, the conclusions now are that floor panels should be insulated against these losses by two measures—(1) the incorporation of at least 1 inch of insulation material between the outside edges of the slab and the foundation; (2) the use of a membrane water-proofing material under the slab and above the fill or, better yet, waterproofing under the fill. (See Fig. A).

Membrane Waterproofing

When the magnitude of the heat flow from the slab into the ground beneath was realized, the first ideas for reducing the flow were to place under the panel a fill—from 6 inches to 2 feet—of gravel, cinders, sand, etc. This fill was laid on the earth and leveled off. The panel was then laid directly on the fill. It was soon discovered that ground water worked into the fill and the presence of water in the fill neutralized much, if not all, of the insulation value of the fill so that when water was present the heat flow into the ground was just as high as when no fill was used.

The next remedy consisted of draining the fill through field tile laid around the edges of the fill or outside the foundation. This seemingly brought little improvement.

Next, as shown in Fig. A, and still being used, was the incorporation of membrane waterproofing laid between the slab and the fill. Placed here, the membrane stops the capillary action between the slab and water in the fill, and does increase the insulation value.

Waterproof the Fill

But the best construction now is thought to be to make a "tank" of the membrane waterproofing (watertight if possible by using asphalt or pitch as in a built-up roof) and in this "tank" place the fill and the slab. With this construction the fill always remains dry and offers its maximum insulating value. As shown in Fig. A this membrane is carried up the inside of the foundation wall to the level of the top of the panel slab. This waterproof construction, coupled with the 1-inch of insulation around the slab edges, is the best reducer of heat flow so far developed.

Warm air heating contractors installing warm air floor panels should insist that this construction be used. If it isn't, there is sure to be unnecessary heat flow with subsequent high fuel bills and cold floors. Most contractors can appreciate the gravity of this problem because of our industry's years of experience with recreation rooms in basements.

This problem of heat flow from a panel into the earth was discussed in an article written by John E. Peterson, Research Engineer, Minneapolis-Honeywell Regulator Co. Mr. Peterson also included the mathematics of heat flow and insulation as follows:

"The downward heat flow into the fill area under a heated concrete slab has often been referred to as a negligible quantity and it has been said that once this area has been heated, heat flow is in a steady state—that is to say, once the "investment" is made in heat storage, further heat loss is negligible. This theory is based on a relatively constant temperature at the under surface of the slab, but our investigations proved that the weather changes with sufficient frequency to present

a condition of unsteady state. This means that there are frequent changes—from storing Btu's in the floor slab and fill to reversal of heat flow from this mass.

"The cycle of storing and reversal of heat flow may occur as frequently as once in successive 24 hr intervals. The amount of heat stored becomes a serious consideration because our observations revealed that these heat units are lost by being dissipated through the foundation, below the surface, to the surrounding soil at the perimeter of the structure, and by reverse flow of heat into the building at a time when no heat from the floor was required. It was observed that the loss into the surrounding soil was in addition to the edge loss of the heated slab because the latter heat was dissipated largely to the atmosphere at the exposed edges. The reversal of heat flow from storage cannot be controlled in accordance with the heat load at any particular time.

"Empirical data emphasizing the importance of this storage problem may be summarized by saying that ice, snow, and frost were found to be melted 2 ft. distant from several structures; this condition has been confirmed by other observers. Room temperatures mounted as high as 97 F during sunny days (in Solar houses) requiring ventilation for relief. Fuel input did not reflect the Btu load, nor the degree days.

Reduce Amount of Heat Storage

"Solving the problem of heat storage and resultant ground losses and reversal of heat flow, appears to be possible by reducing the amount of heat storage through the use of suitable fill materials.

"Since the materials used in the construction of a floor panel are, today, usually of the masonry type, it is difficult to envision a material that would be applicable and at the same time would give resistance to heat flow. Masonry materials are heavy, and we usually associate such materials with high thermal conductivity and storage capacity. But investigation indicates several materials can be utilized to provide resistance to heat flow and at the same time be suitable for application to slab floors.

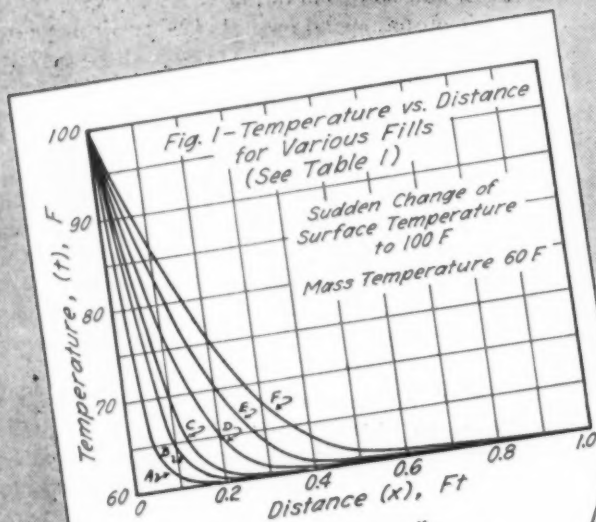
"The best analysis of the comparative values of such materials would be given by test data from two identical structures situated as closely as possible to each other, but with different fill construction under the floor heating panels. This would permit plotting temperature-distance-time curves for each case and then (by the rules of calculus) determining rates of heat flow, storage, etc. Analysis of structures not in proximity to each other would be erroneous, unless the complexity of the analysis were increased further by introducing the variable moisture content of the underlying soil into the equations. Soil composition and moisture content vary with location and, since each changes the k value of a substance, it is apparent that heat storage will vary with location.

"A mathematical approach to this problem has the advantage that known and relatively fixed values may be assigned to elements entering into the equation and the results for an ideal condition may be compared with the extreme and yet possible condition found in the field.

"This approach is practical because it is based on thermal conductivity, density, and specific heat—physical values which have been found to be reliable in the calculation of heat transmission problems.

Fills for Slab Panels

"Table 1 gives the thermal conductivity and density values for different fill materials. In the case of soils, they are con-



$$t = t_s + (t_i - t_s) \frac{2}{\sqrt{\pi}} \int_0^n e^{-n^2} dn$$

t = Temperature at x
 t_s = Surface Temperature
 t_i = Mass Temperature
 x = Distance, Feet
 T = Time, Hours
 a = Thermal Diffusivity $= \frac{k}{c\rho}$
 k = Thermal Conductivity
 $c\rho$ = Specific Heat of Unit Volume
 c = Btu per lb per F
 ρ = lb per cu ft

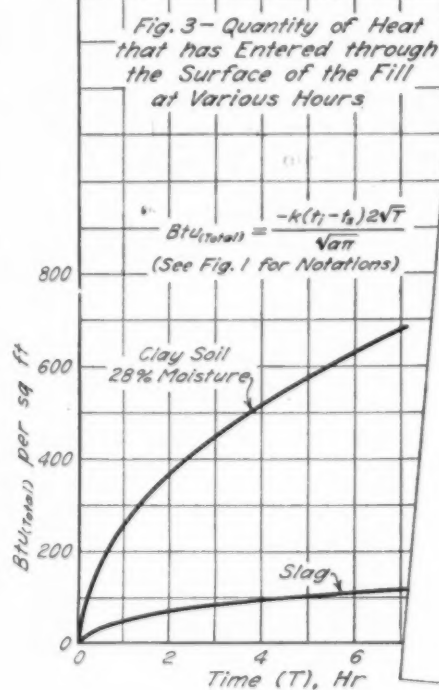
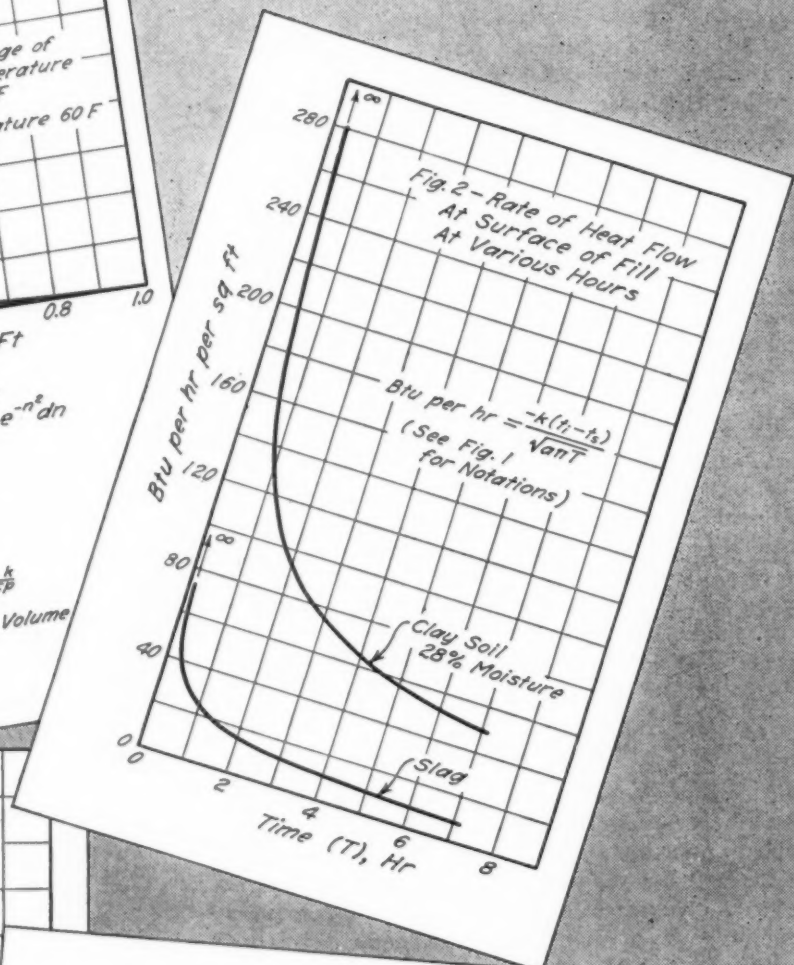


Table 1—Fills for radiant slab panels

Material	k^a	Density	Source
Soil			
Minimum	0.20		
Max. (Clay: 28% moisture)	1.35	125	ASHVE Guide
Mean	0.775 ^b		Jakob-Hawkins
Dry	0.30		Calculated
Max.	1.00	125	Jakob-Hawkins
Sand			ASHVE Guide
Dry	0.20	95	Jakob-Hawkins
10% moisture	0.50	100	Jakob-Hawkins
Byproducts			
Clinkers (granular)	0.27		M&Adam
Cinders (dry)	0.31	43	Miscellaneous
Slag ^c	0.064	75 ^d	M&Adam

^a k = thermal conductivity per square foot per degree per foot.
^b Calculated mean k value of the minimum and maximum values.
^c Density by other source than that indicated.
^d Air cooled blast furnace slag crushed and screened $\frac{1}{4}$ in. to fine.

Table 2—Time Values in Hours for Fills

Curve (See Fig. 1)	Clay	Soil (Minimum)	Slag
A	3/160	$\frac{1}{8}$	$\frac{1}{4}$
B	3/80	$\frac{1}{4}$	$\frac{1}{2}$
C	3/40	$\frac{1}{2}$	1
D	27/160	$1\frac{1}{8}$	$2\frac{1}{4}$
E	3/10	2	4
F	21/40	$3\frac{1}{2}$	7

sidered as fills because they occupy the same position below the panel as the other fill materials. The high rate of conductivity for clay with 28 per cent moisture discloses the importance of moisture at the building site. Most slab areas are partially excavated or scraped and the slab lies on a clay base of unknown moisture content. The minimum value for soil may be an optimum with respect to composition and moisture content. A mean between minimum soil and clay with 28 per cent moisture has been calculated and may serve as a practical mean if it is desired to calculate values in the equations for practical comparisons.

"The low value in Table 1 for air cooled blast furnace slab suggests excellent possibilities for use of this material as a fill below slab heating panels.

"Fig. 1 shows curves of temperature vs. distance, and Table 2 indicates the time values in hours for clay, minimum soil, and slag. From Table 2, it is noted that it requires approximately 7 hr. for the slag fill to attain the same temperature curve that the clay fill attains in about $\frac{1}{2}$ hr.

"The curves and time intervals are based on the equation given at the bottom of Fig. 1, which is for a sudden change of surface temperature of an infinitely thick fill. The values are computed for 100 F surface temperature of the fill and a mass temperature 60 F at the start of the heating period. Thus, if it required 100 F surface temperature of the fill to provide sufficient Btu's from the top surface of the radiant panel to meet the design heat losses, and if this temperature was suddenly applied by instantaneously heating the surface of the fill to 100 F and maintained, after $\frac{1}{2}$ hr. the temperature gradient for clay with 28 per cent moisture would approximate curve F of Fig. 1. Also, this same curve would approximate the temperature progress of slag fill after approximately 7 hr.

"For those interested in checking these calculations, values for the error integral for the equation in Fig. 1 may be pro-

cured from mathematical handbooks or textbooks on heat transmission. The specific heat of air cooled blast furnace slag is not readily procurable. Values for this material have been computed on a basis of 0.21 Btu per degree per lb., according to information obtained from the Inland Steel Co.

"Fig. 2 shows the rate of heat flow through the surface of the fill vs. time, comparing clay with 28 per cent moisture and slag. These curves are not presented to show actual rates of heat flow into the fill area under operating conditions, but as a comparison of the relative values of one fill with the other.

"Fig. 3 is a comparison of the total amount of heat that has flowed through the surface of the fill at various times and again serves as a means to gage the comparative values of the two fills. Considering the slag fill as an ideal one, 82 per cent saving in heat loss (this is actually heat storage, but for practical purposes must be considered as a loss) is indicated as compared with the clay fill.

Use of Moisture Barrier on Ground

"This analysis indicates that heat storage below slab panels is a function of thermal conductivity, density, and specific heat of the material—and that the values assigned to these variables depend upon the moisture situation in the fill area. In order to assign fixed values, it is necessary to segregate the fill from the surrounding soil by use of a suitable moisture barrier, such as membranes laid on the prepared surface of the ground and impregnated with asphalt or tar in a manner similar to the accepted practices of laying a builtup roof (Fig. A). The membranes should be flashed to the top of the foundation walls to prevent surface water or subterranean moisture from entering the fill area. This construction assures that assigned k values of the fill material will be obtained, and that possibly they will improve with time as the fill material dries thoroughly.

"This construction requires that the ground surface be leveled and all trenched areas filled and tamped to prevent settling and ultimate fracture of the moisture barrier. Soil pipes and other facilities extending through the surface should be flashed and reinforced in such a manner that they will withstand pressure in order to prevent leakage.

"Fills of low conductivity material, such as air cooled blast furnace slag to a depth of 12 in., will assure reducing the heat loss problem to minimum, or possibly negligible, values.

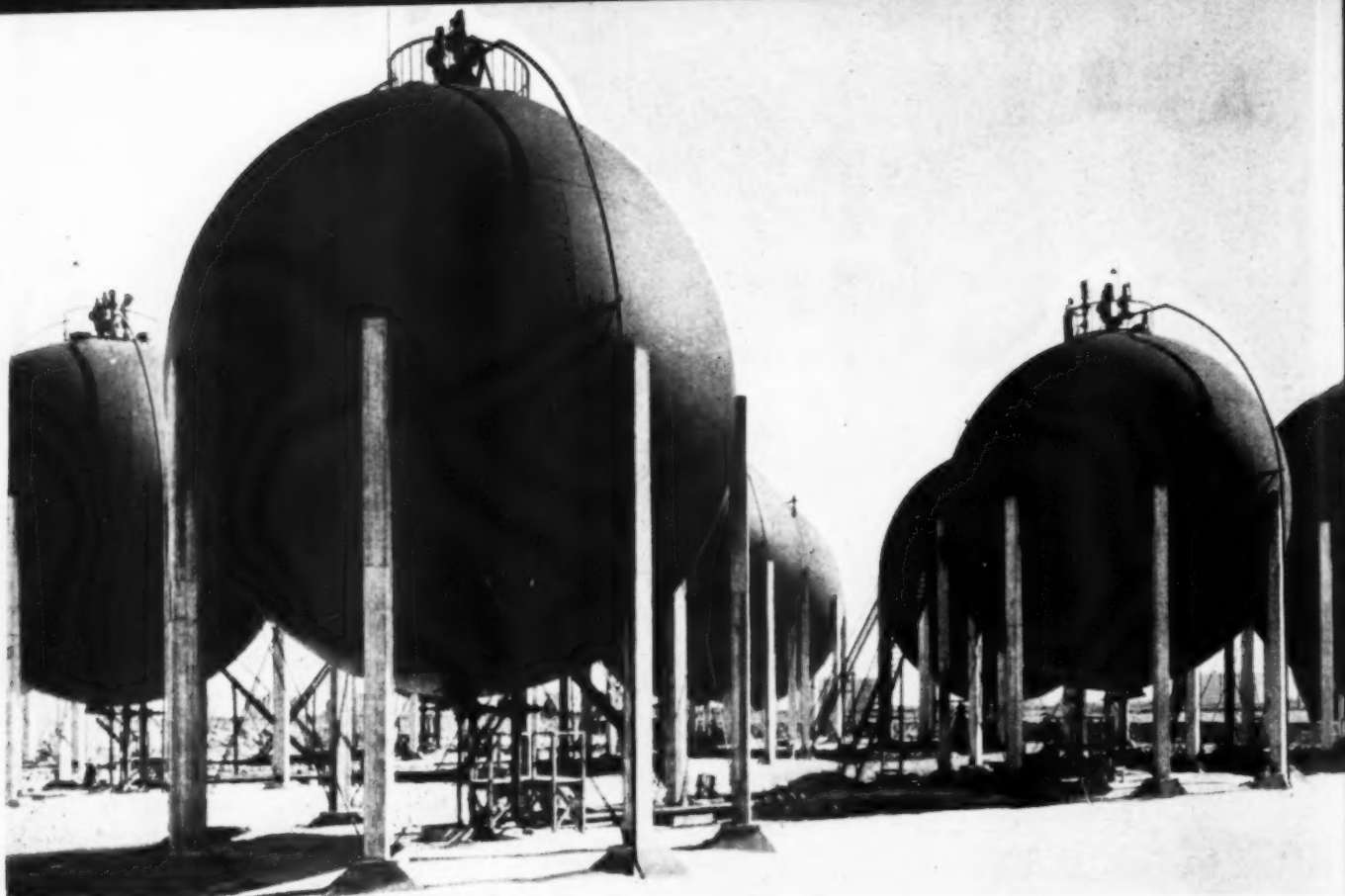
"Experience with this type of construction will reveal additional advantages, such as lessening of humidity and moisture problems encountered with slab construction."

Surplus Zinc

ALL six grades of zinc will be released from government stocks, starting in November, to assist manufacturers who need the metal to keep their plants operating, says CPA. In the past two months, only the High Grade type of zinc was available for release from government stocks because the other five grades were located at strikebound refineries. These strikes have now been settled.

CPA reports that current government zinc stocks were approximately as follows:

Type	Amount	Use
Special High Grade	3,000 tons	For Die Castings and Electroplating
High Grade	140,000 tons	For Brass Mill Products
Intermediate Brass Mill Special Select	21,000 tons	For Brass Mill and Zinc rolled products
Prime Western	45,000 tons	For galvanizing
	209,000 tons	



Catalytic Fuel Oil Supply

From a paper, "Effect of Catalytic Cracking On Fuel Oil Supply", by Arthur E. Pew, Jr., J. Bennet Hill and John R. Bates of the Sun Oil Company, Philadelphia.

THE two principal products of refining are gasoline and fuel oils. Gasoline has at present no real competitor. There is nothing else to which the operator of a gasoline internal combustion engine can turn and, in addition, fuel cost is a small fraction of the cost of operating a motor car.

Fuel oils, however, compete directly with coal and gas. They also compete with gasoline in that they are refinery charging stocks from which gasoline—and the highest quality gasoline—is made. If fuel oils are sufficiently high in price, or gasoline sufficiently low, the refiner can afford to forego making gasoline from fuel oils and sell them as such. But if fuel oil is sufficiently high in price, the plant or home owner will turn to other fuels—and the car owner has no other ready source of motor fuel. It is not practical to discuss this competition between gasoline and fuel oils mathematically in dollars and cents, because of the complexity and the many variables involved. We should immediately be stalled on such problems as how many cents per gallon the average home owner will pay to stay in bed in the early morning and not rise to stoke a furnace.

Consumer Must Be Pleased

Economically and practically, however, we must satisfy the gasoline consumer both as to quantity and quality and, of course, we must satisfy the fuel oil consumer, too. We can do this and at the same time give the home oil burner fuel oil of high quality and with greater heating value per gallon,

—provided the burner is designed to utilize it satisfactorily. Catalytic cracking produces the highest quality motor gasoline and at the same time a No. 2 fuel oil which is clean, non-corrosive and yields more Btu's per gallon on combustion. It is heavier and has a higher density or lower API gravity than virgin gas oils. As the API gravity decreases the rate of combustion decreases and flame length increases. The adjustment of burners and burner design to this decreased combustion rate is the goal we suggest, in order to provide burner owners with better fuels which will also be competitive with coal, gas, and gasoline.

Distillate fuels will be the principal subject of this discussion. Therefore, let us consider the distillate fuels which are produced and the types of burners in which they are used.

Classes of Fuels

The present U. S. commercial standards CS-12-40 set up three classes of distillate fuels with basic specifications. In these specifications there are no gravity limitations. Since API gravity, for any given boiling range, is a characteristic of the fuel which is roughly indicative of its chemical composition and which in turn has a bearing on the burning quality, a mention of gravity has been and will be made in this discussion.

The No. 1 fuel has been commonly a low boiling straight run distillate; and it is common practice, in many sections of the country, to make this product indetical, or nearly so,

with kerosene. Gravity has probably averaged about 38-44 degrees for this product.

The No. 2 fuel was formerly either a straight run gas oil cut to the proper specifications or a mixture of this with thermal cracked gas oil. While immediately before the war, it may have averaged about 35.0 degrees gravity, there was a great deal sold with gravities as high as 38.0 degrees. Some burners for No. 2 fuel have been designed for this high gravity, easy-to-burn fuel, and many more have been adjusted to it. In such cases, the customer must select high gravity No. 2 fuel to get proper results.

No. 3 fuel was originally a highly cracked, low gravity fuel and had the attendant advantage of higher heat content in those burners which were specially designed to burn it. No. 3 fuel presents no new problems in connection with our subject, so that further mention of it will not be made.

Domestic Burner Classifications

Domestic burners may be divided into two basic types which include several sub-classifications, as follows:

Vaporizing Burners—Vaporizing burners rely on vaporization of fuel before combustion and are in reality, therefore, gas burners. Because of this, light fuels, such as characterized by No. 1 specifications, are most suitable and are, in fact, necessary where no mechanical draft is used. Some of the latter types will operate on straight run No. 2 grade with proper adjustments.

Atomization Burners—To satisfactorily use heavier and less volatile fuels, atomization of the oil and mixing with air before entering the combustion zone is necessary. This may be accomplished in a variety of ways, but where the atomization and mixing is efficient, the necessity for high volatility disappears and the only volatility requirement is for sufficient front end volatility to insure proper starting of the flame.

In the five year prewar period, the sales of oil burners for central plant installation were distributed, as follows, over the various types:

Vaporizing	10.8%
Vertical rotary	11.0%
Low pressure gun	6.2%
High pressure gun	71.7%
Miscellaneous	0.3%

There were 2,268,000 central plant burners consuming 341,000 barrels per day of fuel in operation in 1941. By 1950, it is estimated that there will be 3,740,000 such burners using 473,000 barrels per day of fuel. (See appended Table)

Characteristics of Oils

How does the No. 2 fuel oil produced from catalytic cracking differ from the virgin oil?

Cracking of an oil removes hydrogen preferentially and increases the carbon to hydrogen ratio, thereby reducing the API gravity, as has been said. When virgin No. 2 is the charge, the gravity drops about 4 to 5 points. In the supply picture, which we have just shown, only a small portion of the cracking charge is in the No. 2 boiling range. Most of it is higher boiling. This high boiling, low gravity fraction of crude produces a No. 2 of even lower gravity. Since, in the future, furnace oil may be composed almost completely of catalytic distillate, except for such quantities as will bring the refiner sufficiently high price to justify its removal from cracking stocks, the following specifications are suggested as those upon which the design of burners should be based:

	Proposed	Present Com. Standard
API gravity	28-30°	none
10% distillation	475° Max.	440° Max.
90% distillation	600° Max.	600° Max.

The lower front end volatility is occasioned by the fact that catalytic gasoline unlike thermal or straight run, retains its high anti-knock quality up to the initial boiling point of the charge from which it is produced.

What Burners Can Handle

The operation of existing burners, and those to be manufactured in the future, on this type of fuel has been actively studied by Technical Committee E of American Society for Testing Materials with the cooperation of burner manufacturers in testing. The results released to date show that No. 2 fuel of the above specifications or even lower in burning quality can be satisfactorily handled in all but vaporizing burners. In view of the data submitted here, these results should receive fullest consideration.

ESTIMATES OF U. S. AVERAGE NUMBER OF CENTRAL HEATING TYPE BURNERS IN USE AND OIL CONSUMPTION ANNUALLY FROM 1936 TO 1950*

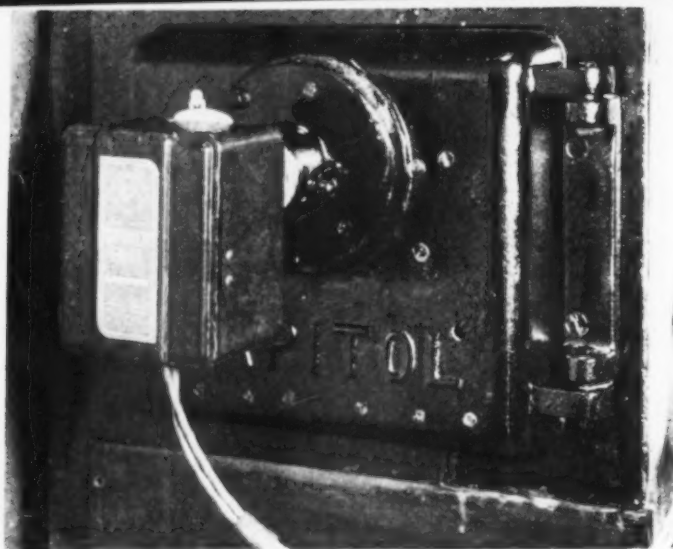
Year	Average Number of Burners Operating	Oil Consumption Barrels	In Barrels Per Burner
1936	1,246,400	69,429,000	55.70
1937	1,435,610	81,235,000	56.59
1938	1,599,150	82,388,000	51.52
1939	1,765,040	97,131,000	55.03
1940	1,998,730	115,533,000	57.80
1941	2,268,590	120,908,000	53.30
1942	2,394,180	121,506,000	50.75
1943	2,385,370	107,962,000	45.26
1944	2,417,185	109,406,000	45.26
1945	2,532,410	130,841,000	51.67
1946	2,739,910	137,061,000	50.02
1947	2,989,910	145,509,000	48.67
1948	3,239,910	154,050,000	47.55
1949	3,489,910	162,613,000	46.60
1950	3,739,910	172,784,000	46.20

*—Estimates of Sun Oil statistical research department, based upon data presented by S. B. Eckert and Arthur E. Pew, Jr. at American Petroleum Institute Houston meeting, November, 1932, and data published in "Fuel Oil and Oil Heat," and by the Oil Heat Institute.

In conclusion, then, the economic competition for fresh gas oils in the production of furnace oils on one hand and gasoline on the other will require, at maximum gasoline demand, that No. 2 fuel oil be composed almost entirely of catalytic gas oil. To be in its strongest competitive position with respect to coal and gas, the oil industry should be ready to utilize this product to a maximum.

Present day vaporizing burners cannot operate satisfactorily on cracked No. 1 or No. 2 fuels. They must be supplied from the existing supply of virgin kerosene or No. 1 fuel. A large construction program of burners requiring these virgin fuels, together with anticipated demands for diesel and turbo jet engines will result in a high demand for this material and consequent strong price position as compared to other fuels not suitable for the same type of use. It would thus appear that here again modifications of equipment to enable the use of cracked products would result in better economy and a stronger competitive position.

These conditions will not come overnight.



New "Stoker-Pilot" Sees the Flame

A New Development
In Stoker
Control

RECENTLY, Mineral Industries Experiment Station of Pennsylvania State College has been conducting tests on a fully automatic stoker produced by the Pocahontas Fuel Company Incorporated. An "OP" Stoker Pilot was included in these tests as an essential part of the stoker unit. This instrument is used as a "hold fire" and "out fire" control in the burning of fine, strongly coking coals on this unit. The "OP" pilot has built into it certain sensitivity characteristics in the bi-metal coil and type of mercury tube and is designed to be installed in the upper right hand corner of the feed door where the instrument "sees" the fire.

The use and operating characteristics of this instrument in burning strongly coking coals is described as follows:

"This instrument consists of a spiral of bi-metal extending into the fire box through a hole cut in the upper right hand corner of the feed door. The barrel of the instrument is located so that it can "see" the fire and operate to a large extent on radiant temperature. This spiral of bi-metal then winds or unwinds, depending on the temperature, and in so doing rotates a shaft extending into the instrument. As this shaft rotates, it tips a carriage mounted on its end and upon which two mercury tubes are mounted in such a way that as the furnace cools off, first one makes a circuit and runs the stoker until the furnace temperature is regained. The second one only comes into operation, if for some reason or other the temperature should continue to drop, due to loss of ignition.

"After the furnace temperature has decreased a pre-determined amount (as determined in turn by the angle at which the two mercury tubes are adjusted to each other) the second mercury tube or out-fire tube breaks the circuit to the stoker and shuts the stoker down, before any undesirable amount of unburned coal has been pumped into the furnace.

"When the usual type of "hold-fire" timing device is used with strongly coking coals, the results may sometimes not be satisfactory because in order to be sure never to lose a fire, the timer rate has to be set up high enough to catch the shortest possible ignition period maintained by natural draft. Therefore, except when this short period exists the timer is operating the stoker appreciably more than necessary to simply maintain minimum ignition and this excess operation runs from 50% to 100% more than that required for ignition purposes alone. Furthermore, the adjustment of such a hold-fire timer is more or less critical since its adjustment requires a close knowledge of the actual feed rate and an adjustment which results in a minimum of something between 30 pounds

and 40 pounds of coal per day on continuous bank. In addition to this, of course, careful consideration must be given to the natural draft adjustment. Otherwise, the fuel bed will burn out faster or slower than the rate at which the coal is fed.

"Furthermore, in the event ignition is lost with the timer and a heat run is required after ignition is lost, the furnace fills up with green coal and the subsequent cleaning of the fuel bed and re-lighting the fire is a real problem.

"With the stokerpilot, since it is primarily a cause and effect control (or a furnace thermostat which runs the stoker whenever the fuel bed reaches a certain minimum temperature condition and *only* then) the result is that the stoker runs only as much as is necessary to maintain a pre-determined bank rate.

"By careful study, we find that stoker operation when controlled with a stokerpilot will vary from as much as 10 or 12 times an hour to as little as once every two or three hours, depending on the fuel bed conditions.

"Natural draft has relatively little effect on the stokerpilot adjustment since if the fuel bed tends to burn out too rapidly, the stokerpilot automatically runs the stoker more or less frequently to correct this condition and maintain the desired bank rate.

"If, on the other hand, the fire goes out, the stokerpilot will shut the stoker down after it has run about 10 minutes or so and before it has pumped in any appreciable quantity of unignited coal. As a result, re-lighting the fire requires no cleaning of the fuel bed or other undesirable dirt or work.

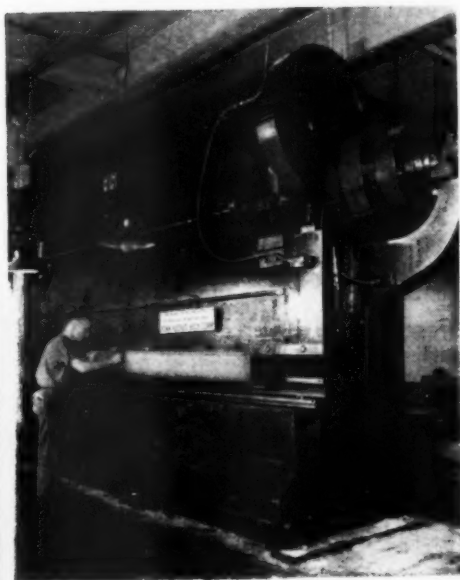
"It's accepted that to maintain proper room temperature, a thermostat is required and no one would attempt to use an arbitrary time cycle. By the same token, it is logical to maintain a uniform furnace temperature by using a thermostat rather than an arbitrary time cycle because of the other items which enter the picture mainly, feed rate, natural draft, forced draft, etc.

"The adjustment of the stokerpilot is a simple matter since the serviceman or the customer simply adjusts the setting higher or lower until the desired bank rate is obtained. This is something which is very easy to determine by visual observation. Customers who are interested in the maximum comfort from their stoker installations can use a high bank rate during the winter months and a low one during the summer months so as to obtain more steady heat during the heating season and so as to obtain a minimum of undesirable heat during the mild weather months."

AMERICAN ARTISAN

SHEET METAL

S E C T I O N



DEVOTED TO SHEET METAL CONTRACTING AND FABRICATING



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Jigs and Fixtures

For Sheet Metal Welding—Part II

By Arthur N. Kugler
Mechanical Engineer, Technical Sales Div.
Air Reduction Sales Company

THE discussion in Part I of this article was general, without any consideration of the properties of the specific metal to be held in the jig. This is, however, a most important point, for on it hinges the size and strength of the jig and in some instances whether or not a jig can be used. The properties of metals most important in designing jigs and fixtures for welding are: (1) the coefficient of expansion and (2) the thermal conductivity. A metal with a relatively high coefficient of expansion will exhibit considerable movement under welding heat. A high thermal conductivity, however, means that heat will dissipate rapidly through the work. Where it is necessary to hold metals that possess high coefficients of expansion it is usually necessary to keep the clamping elements as close together as the welding operation will permit. Under some circumstances water cooling of jig parts may be necessary to localize the heating. With metals of high thermal conductivity a jig might remove so much heat that it is impossible to raise the edges to welding temperature. In such cases sheet asbestos may be introduced between the part and the jig to minimize heat loss.

The practical aspect of this phase of the problem is simply that the one who plans the construction of jigs must examine and study the properties of the metals to be held. Fortunately,

common, mild steel offers no particular problem—it is the alloys and non-ferrous metals where difficulty arises. For example, some aluminum alloys possess little strength at elevated temperatures and if restrained during welding will crack. One way to overcome this is to provide a jig which positions the parts for tack welding only and complete the welding subsequently outside the jig. Since each metal or combination of metals presents different problems, it is difficult to provide general instructions other than to warn that due consideration must be given the factors of coefficient of expansion and thermal conductivity.

Effect of Type of Joint

Next in importance in designing a welding jig is the type of welded joint and weld to be employed. It should be noted at this point that there is a distinction between a "welded joint" and a "weld," as will be seen from the definitions quoted herewith:

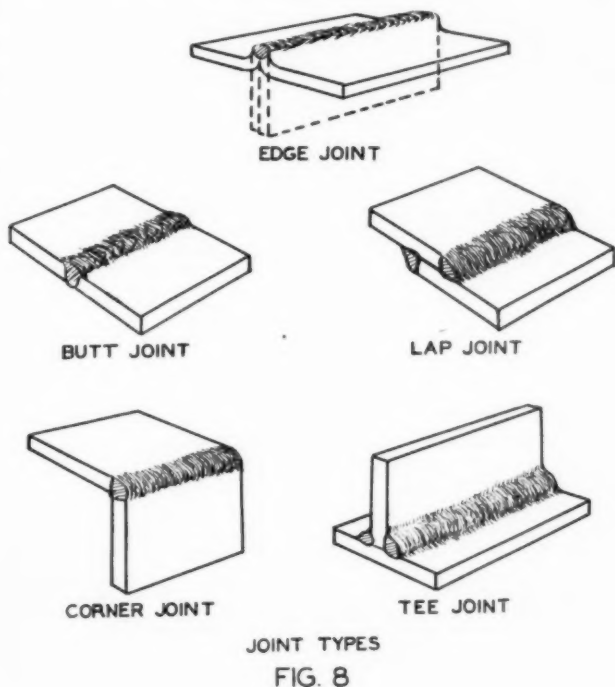
Welded Joint: A localized union of two or more parts by welding.

Weld: A localized consolidation of metals by a welding process.

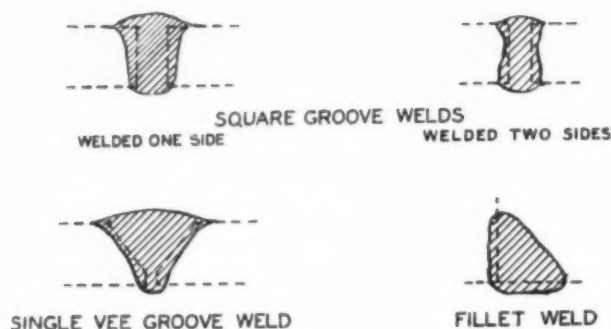
The American Welding Society's pamphlet, "Definitions of Welding Terms" (from which the above definitions are quoted) lists ten joint types. Of this number, however, five are modifications of the fundamental types and two are not particularly applicable to sheet metal work. The basic joint types, namely, butt joint, lap joint, tee joint, corner joint and edge joint are all employed in sheet metal fabrication. Both the butt and lap joints have further subdivisions in that they may be either single or double welded, i.e., welded from both sides. Double welded butt joints are generally used on heavy metal, whereas double welded lap joints do find application in sheet metal practice. Fig. 8 illustrates the several joints applicable to sheet metal fabrication.

The two fundamental types of welds, groove and fillet welds, may be further subdivided, depending upon the method of joint preparation. However, for the purpose of this discussion consideration need be given only to the square groove weld, the single vee groove weld and the fillet weld illustrated in Fig. 9. The other weld types are particularly suitable for the heavier metal sections.

One of the principal functions of the welding jig is to hold the edges to be welded in correct position and alignment and at the same time apply such restraint as is necessary and permissible to reduce distortion. Since the single welded butt



JOINT TYPES
FIG. 8



WELD TYPES
FIG 9

joint consummated with a square groove weld is very common in sheet metal work, it will provide a convenient starting point in considering jig designs.

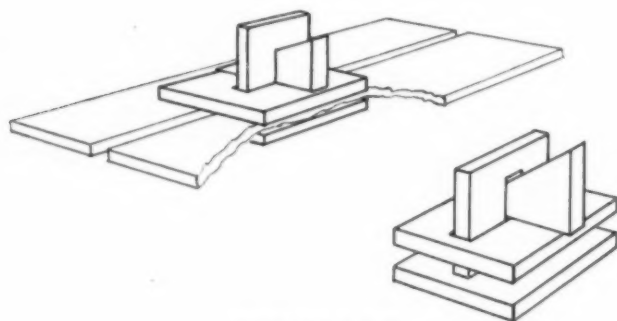
Simple H Separator

The quantity of work to be produced, as well as economical factors, determine whether an elaborate jig or a simple device will be necessary. Therefore, consider first the simplest case of one moderately long butt joint in sheet metal, to be held in alignment for welding by either the oxyacetylene or metal arc processes.

The easiest way to accomplish this end, provided some distortion can be tolerated, is by means of H separators. The design of these separators as well as their placement in the joint may be seen in Fig. 10. The separator is inserted in the joint and the starting point tack welded. Several additional separators are inserted along the length of the joint. As welding progresses, the separators are advanced. A study of this will immediately reveal that the H separator serves only to facilitate welding by maintaining spacing and alignment; it exercises virtually no control over distortion and contributes little to accuracy of finished mensions. The H clamp also pictured in Fig. 10 is subject to substantially the same limitations except that it may be slightly easier to apply.

Double L Clamp

The next step in securing an improvement in the jig for this joint would be the employment of the "double L clamp," Fig. 11. This device consists of a tee shaped member, the up-



DOUBLE "L" CLAMP
FIG. 11

standing stem of which is of a thickness equal to the spacing required. A slotted cover plate is provided to slide over the stem. In the stem is another slot to receive a wedge. The work pieces are inserted between the base of the tee member and the cover plate; the edges of the work pieces are butted against the stem. The wedge is driven into the slotted stem forcing the cover plate down on the work, holding it in alignment. By using several of these it is possible to exert great pressure on the joint to control warping. However, the device is somewhat complicated and will require time to apply and move.

From this study it will be seen that the problems of maintenance of alignment and spacing in a joint can be readily solved. (It should be noted that these are not the only methods—others are also effective to about the same extent as those discussed.) Evidence up to this point indicates the necessity of *continuous* clamping for control of distortion. Several means are available for the continuous clamping, the particular method selected generally depending on the economics of the situation, i.e., the amount of expense for fabrication of the jig which the job can tolerate.

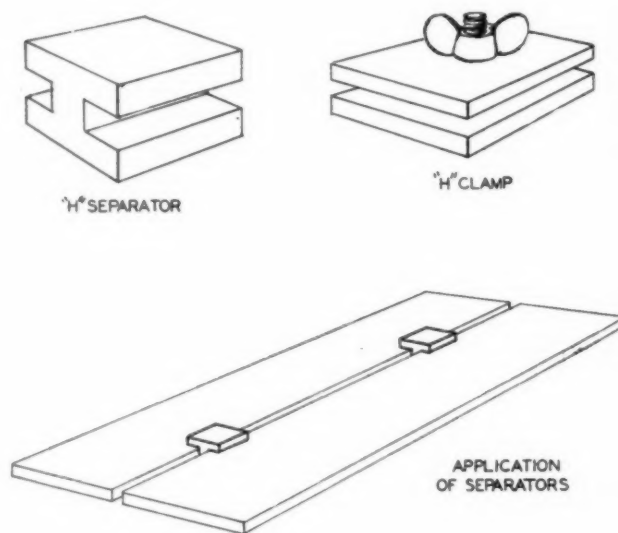
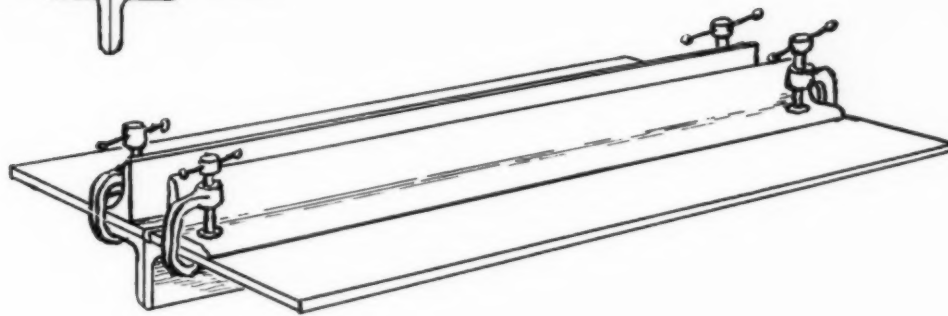
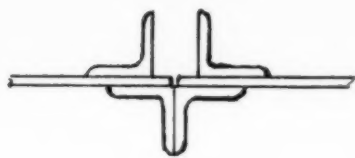


FIG 10

Simple Angle Clamp

The simplest method is to use readily available structural shapes. For example, standard angles can be assembled into an effective jig for moderately long welds in light metal; this may be seen in Fig. 12. To make this an inexpensive yet effective jig note that "C" clamps are used to hold the parts together. If the base or back-up is made of two angles, some means such as welding or bolting should be used to hold them together. A tee section might be substituted for the two angles. In this form the jig would be suitable for small production and when not needed the angles could be used for other purposes. For a more permanent unit to be employed



CLAMP JIG MADE OF LOOSE ANGLES
FIG. 12

on a production job, the top angles could be hinged at one end and a quick-acting eccentric clamp (to be described later) provided at the other end for closing. The most serious ob-

jection to this type of jig is that it is not rigid enough to hold long joints. If heavy angle sections are used to overcome this difficulty, they usually interfere with the welding.

Training Course Survey

VETERANS Administration has ordered an immediate survey of all veterans enrolled in on-the-job training under the G.I. Bill so that by Jan. 1, 1947, VA expects to be paying no subsistence allowance to veterans unless they are in courses that meet the requirements of recent enacted Public Law 679.

At the same time, VA is undertaking a new study of veteran training as follows:

Regional offices are directed to study all veterans in on-the-job training to see whether their courses qualify as apprentice training or whether they meet the standards set by recent legislation. If they do qualify one-way or the other, no further study of those veterans will be required immediately.

If it cannot be determined immediately whether the training course qualifies, closer study of the veterans enrolled in it will be started at once. All available VA training officers will be used to complete the survey.

Veterans enrolled in on-the-job courses are not to be taken out of training while their courses are being studied.

If the training establishment already was approved before the new law was signed Aug. 8, the veteran will be allowed to continue until the state reaffirms or withdraws its approval or until the VA regional office officially determines that the course does not meet the criteria set by Congress.

VA suggests that employees with training establishments which already have been approved should deal directly with state approving agencies in getting reapproval. If they want information about when their establishments will come up for reapproval they should get it from the state, not from VA.

If a course is finally disapproved veterans enrolled in it will cease to receive subsistence allowances and no new veterans will be permitted to enroll.

VA's definition of apprentice training courses includes not only the courses supervised by Federal and State apprentice agencies but also courses leading to an occupation that "re-

quires the use of skills learned through training on the job and to which appointment is based upon having been trained on the job rather than such elements as length of service, normal turn-over, personality and personal characteristics."

Such courses, VA said, must be identified as apprentice training by the establishments offering them and must be officially recognized as apprentice courses by the state approving agency or the Administrator of Veterans Affairs. They also must provide for a well-defined written agreement between the establishment and the veteran regarding the terms of training.

VA's plans for handling the limitation on subsistence allowances take into consideration those who already are in training or in school and those who are going to enroll later.

The compensation figure on which subsistence payments will be figured will include wages, salary, commissions, bonuses and other payments received as a result of the veteran's employment or self-employment. It will include regularly scheduled overtime but not occasional overtime. If board, room, laundry or other such services are furnished to the veteran in connection with his job, a reasonable sum will be added to his wages to allow for these provisions.

Gen. Omar N. Bradley, Administrator of Veterans Affairs, states: "the underlying spirit and intent of the educational and training provisions of the Servicemen's Readjustment Act is to provide an opportunity to each veteran whose education or training was interrupted by reason of his entrance into the service to resume his education or training as a trainee and thereby aid him to attain knowledge or skill which presumably he could have attained but for his service in the armed forces. The subsistence allowance was intended to provide the trainee with a measure of support during his education or training status. It is not a pension, compensation or a bonus. The law does not contemplate that the Government would defray the entire living costs of the veteran or his family."

Getting the Most Out of Your Press Brake

1001 Standard and Special Bending,
Forming, Flanging, Punching Operations
Your Press Brake Can Perform

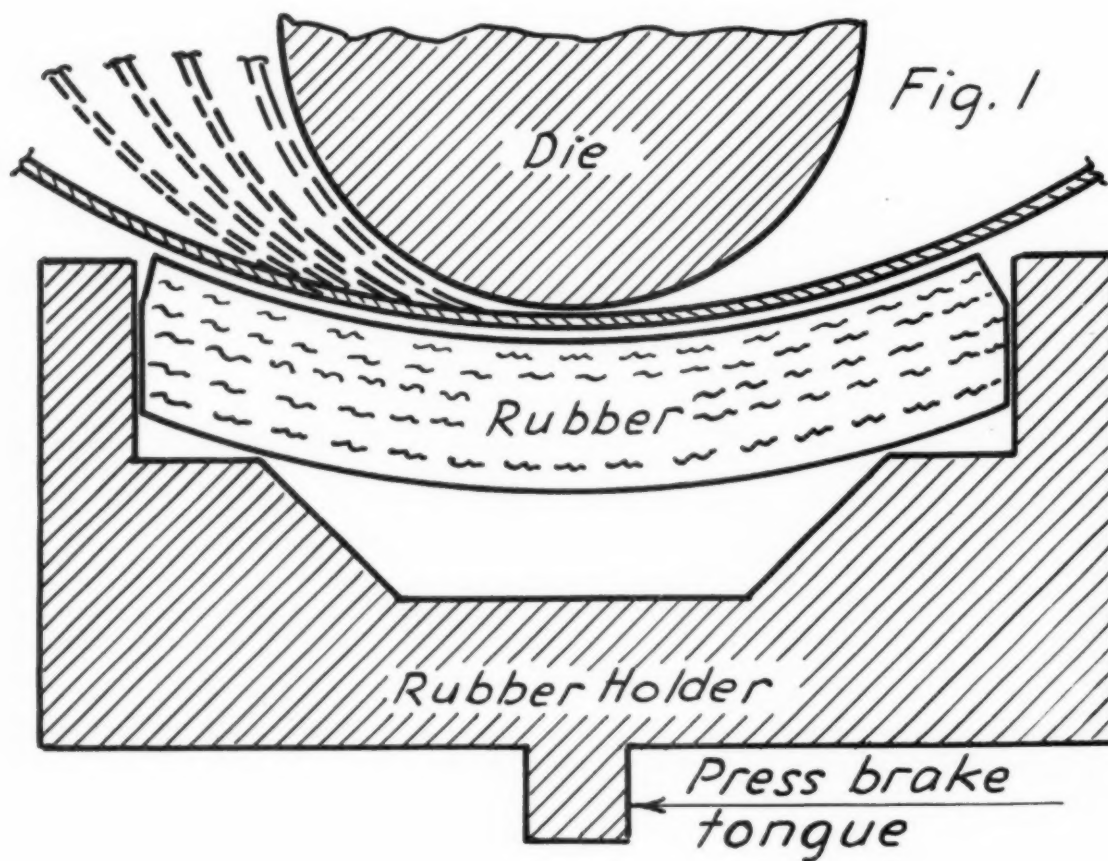
By Ernest E. Zideck
Sheet Metal Consulting Engineer

FORMING OF SHEET METAL IN RUBBER

AIR-BENDING of sheet metal, and its shaping into curves or radials, can be done by substituting rubber for the female or, negative die. This die, unless we want to congest or compress the metal (as has been shown in a preceding text), serves merely to support the sheet, which the male die, also called the "punch," presses down, and bends. This is best exemplified in the several "V" dies, where the sheet comes to repose upon the top portion of the "V", and the punching die descends into the interior portion of the "V", carrying the sheet metal with it. In this "air-bending," as it is called, the

only function of the female die is supporting the sheet, so that the punching die can bend it, in-between the supports.

In a preceding text we have shown that, the farther apart the supports, the less is the pressure exercised upon them, because less pressure is needed to make the bend. In radial shaping of sheet metal by a so-fashioned punching die, the underlaying die may also be a mere support for the sheet, this applying especially to springy metals, because these metals will maintain their original (rolled sheet) grain composition, and give way only to the so-shaped punching die pressure,



at the same time counteracting the pressure, so that the whole area of the metal in contact with the working area of the die will continue tight against it.

Hard metals will not work in the above manner, nor will soft metals. The former, if not supported by the female die over the whole area under formation, will bend in rather straight lines, forming "ridges;" and the latter will not, in such a case, adhere to the working area of the punching die, with the result that the radial will be rather irregular and not of the same size.

For radial formations of the harder, or the softer metals, having a degree of "springiness," the manufacturers of press brake dies have provided female dies having square openings accommodating the punching die plus the sheet metal thickness, with plates of steel supported on springs upholding the sheet metal in the midportion of the forming radial. To facilitate the shaping of metal into varying sizes of radials in the same die; for quantity production, both the punching die and the receiving die are shaped radially, with the sheet metal pressed between the working area of the dies.

Accordingly, the press brake operator choosing the dies for radial formatures will distinguish between metals to be processed by the dies, and will select reciprocatingly shaped dies for harder metals. In absence of a great variety of such dies available for a diversity of shapes, he will choose rubber pads for working the softer metals. Among the softer metals, workable in rubber, we may include mild, cold rolled steel, iron, galvanized and tin-coated sheets, brass and copper, "Inconel," mild aluminum alloys, and half-hard stainless steel not exceeding the 22-gauge in thickness. For bends upon a small radius, the 24-gauge will be the limit. For large curvatures, heavier gauges than 22 may be worked.

Drawings Explained

In the drawing, Fig. 1, is shown a steel rubber holder, fitting into the slot of the bed of a press brake, with a strip of rubber of about one inch thickness supported within the holder and the middle portion of the holder admitting the rubber strip bending down under pressure. The punching die is round and may be one that is standard equipment, or it may a tube, held in the ram by an arrangement illustrated on page 109, AMERICAN ARTISAN, December, 1945. This arrangement can be employed in the forming of round, long pipes in the press brake, by suspending the tube from the ram deep enough to admit of the rounding-up metal to pass under the ram.

As shown in the drawing, the metal is being rounded by stages, but if the diameter of the pipe is a large one, the required roundness can be obtained at one stroke of the ram, continuing the rounding-up operation step by step, feeding in the metal from the front of the brake, while the rounded portion may be wrapping itself around the tube-like die. At this stage in the operation the sheet metal strip will be carried upward, and down by the moving ram. But Fig. 1 is intended primarily to illustrate the radial shaping of a long piece of metal, where other means (rollers of sufficient length) are not available or where other, previous formation, would interfere with the rounding up of the item by any other means.

This kind of forming is exemplified by Fig. 1-A, in which the metal being formed can be visualized as having laterally extending flanges, previously formed, with the radial being formed last. As to the rubber "holders": many sizes can be obtained from the die manufacturers, a few being offered in solid steel, milled out for holding rubber, as in Fig. 3, and the

Fig. 1-A Radial forming in rubber block.

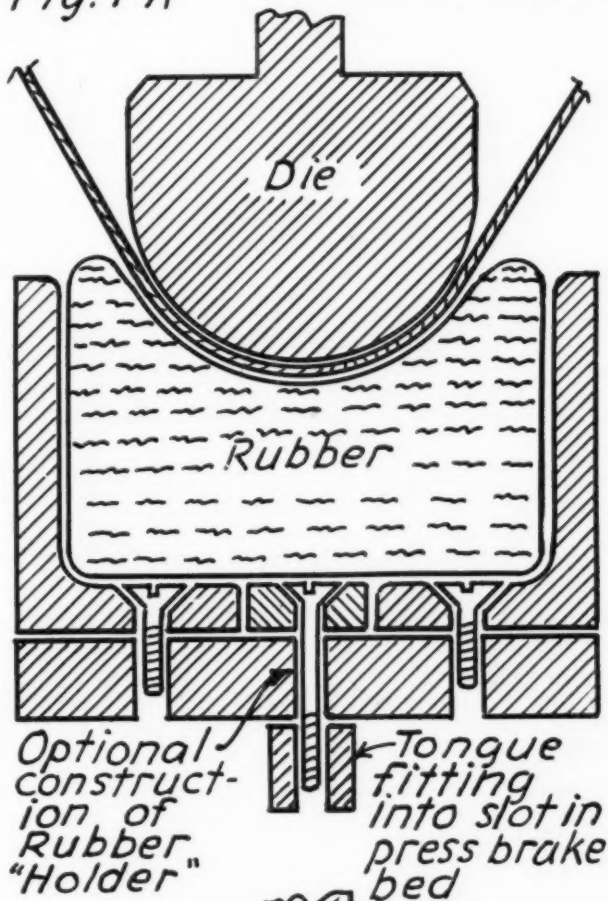
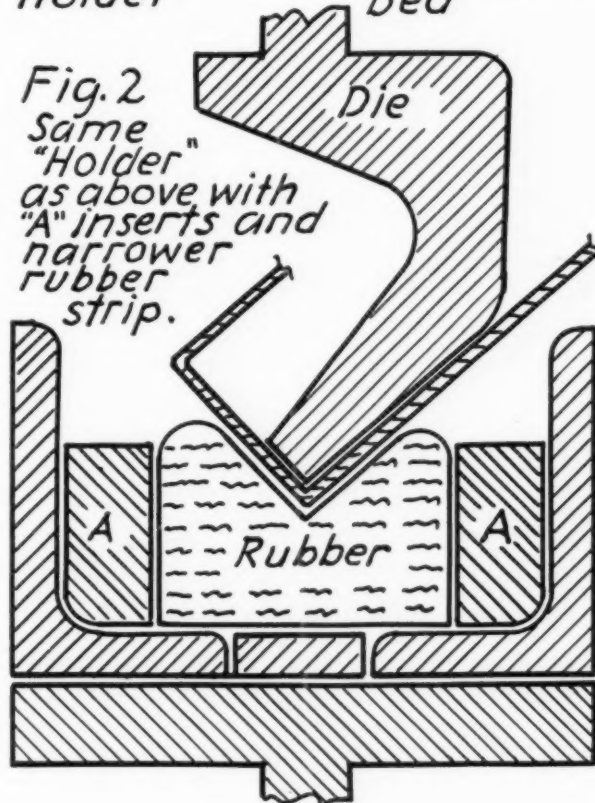
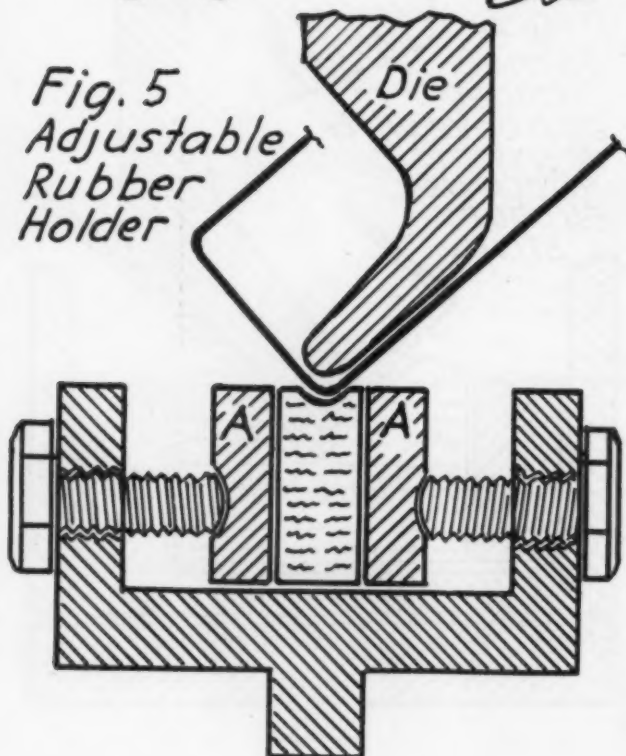
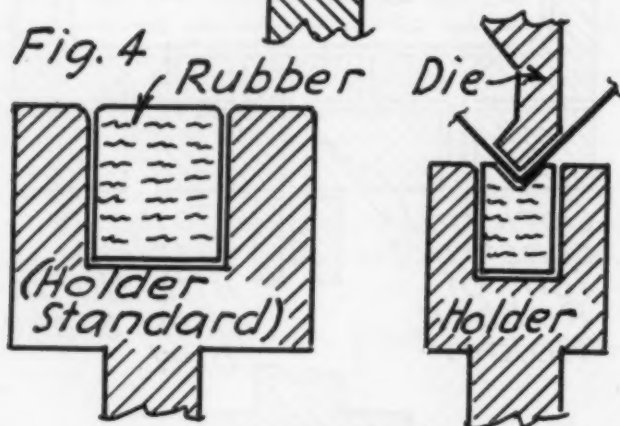
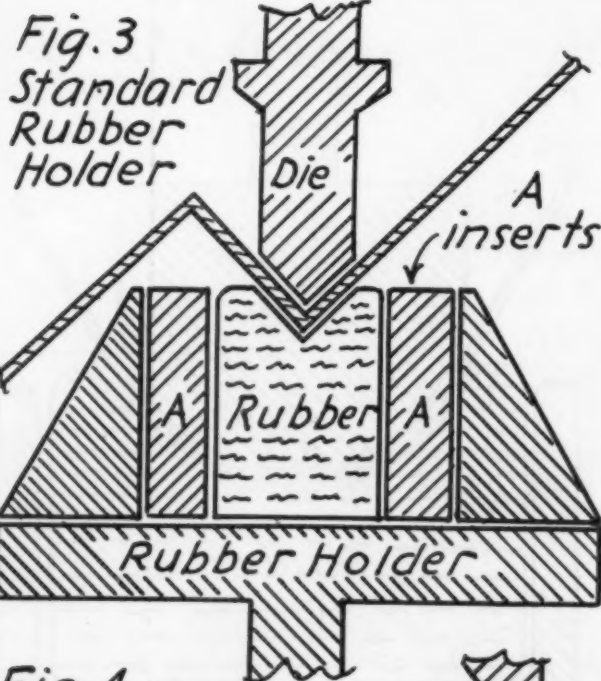


Fig. 2 Same "Holder" as above with "A" inserts and narrower rubber strip.





two shown in Fig. 4. Several makes of adjustable holders are available, as indicated in Fig. 5, and some can be shop-constructed, of angles and plates, as in Fig. 1-A, or Fig. 2. The holders can be of sufficient width to accommodate larger rubber blocks, for large radial forming, with inserts A-A, shown in Figs. 2, 3, 5 and 6, narrowing the rubber-receiving area to widths shown in Figs. 3 and 5, for work requiring narrow rubber inserts.

Fit Dies to Type of Work

A great variety of sheet metal shaping work can be accomplished in substituting rubber for the female die, but it is necessary to distinguish between the work and to select such widths of the rubber as will support the sheet metal as a "V" die does, (on the top of the die), but also prevent the metal flowing sideways, away from the shape of the male die. Thus in Fig. 1-A, we see the rubber being pressed downward into the holder, overflowing at the top, because the steel of the holder prevents the rubber's expansion to the sides. The overflowing of the rubber aids in the uplifting of the sheet toward the working area of the male die, pressing the sheet to it. Were the rubber holder wider, with the rubber block wider in proportion, the rubber would expand to the sides, under the male die pressure and there would be little pressure of the rubber in the direction of the radial of the die.

Job Determines Resilience Needed

Again in Fig. 2, were the rubber strip as wide as is the holder (without the steel inserts A-A), the rubber would not be compressed into the shape shown, but would expand to the sides, with the sheet metal forming into possibly 45 degrees, instead of the 90 degrees. Thus, the narrower the rubber strip, the more pressure it exercises against the metal, as shown in Fig. 4, (the second illustration), where thin sheet is being formed into a 90 degree bend.

It is evident, that bends made in rubber, will not be as sharp as will be bends made in dies that congest, or compress, the metal. But bends made in rubber, in a width which will tend to press against the sheet, will undoubtedly be sharper than would be "air-bends". Again the thickness and the hardness of the metal worked is to be considered: the rubber has a certain degree of expansion, and of resultant pressure in contraction. Softer rubber will be less efficient in pressure-development, or pressure exercise, than will be harder rubber. While for radial formation as per Fig. 1-A, the softer grade of the rubber will be sufficient, the rubber strip in Fig. 1 needs to be much harder, to possess the elasticity required in the indicated forming of the sheet. The thicker, or harder, the metal worked, the harder the rubber needed for efficient work. For sharp bends, as in Figs. 2, 3, and 4, the rubber must be fairly hard, while for radial bends shown in Fig. 5 the rubber can be of a softer grade.

The size of the male (punching) die, will also determine the width and the hardness of the rubber desired for the female die. Evidently, if the male die is narrow, as it is in Figs. 3, 4 and 5, the rubber pad must be narrow, too, because in a wide rubber block the narrow male die, descending only a short distance into the rubber, would scarcely make an impression, the rubber flowing to the side of the die, instead. But if we employ a male die having a large working area, such for instance, as a 90-degrees pointed, 1½ inch wide die used for upturns of box ends and such like, we can use a rubber pad in connection, 2½ inches in width. In this case the male die

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could be made to descend almost $\frac{3}{4}$ inch into the rubber, securing a "sharper" and smoother bend, much smoother than would be an "air-bend" made in the "V" die, because the rubber "congests" the metal, while the "V" die does no such thing. On the other hand, if we use "V" pointed male dies for effecting upturns in the sheet metal, we must not use a wider strip of rubber in the holder than shown at the right in Fig. 4. And, obviously, the thicker is the sheet of metal, the wider can be the rubber strip in the holder.

Use of Inserts

In forming more or less ornamental reinforcements, beads, and the like, in light gauge metals and especially in softer metals, we can make use of a die-holder illustrated in Fig. 6, with variously shaped "inserts" "B", fitting into the holder and easily interchanged. In Fig. 6 the die-holder is shown to be of a width corresponding to the width of a standard, flat press brake die. The rubber pad accommodated in the holder is about $1\frac{1}{2}$ inch wide, so that it is covered by the metal of the die-holder, when brought in contact with it. If wider impressions or beads are desired, the die-holder must be of a width corresponding, with at least $\frac{5}{16}$ inch of the metal at each side of the die, remaining straight. A harder grade of rubber is needed for these shallow impressions, and the rubber must not be allowed to overflow, but be compressed into the holder, by the descending die-holder, as shown. Even at that, the impressions shown in Figs. 6, 9, and 12, will not be very sharp, but for purposes of reinforcing the thin and soft metals, they'll be deep and distinctive enough. They'll be uniformly smooth and appear ornamental, besides lending "stiffness" to flat portions of constructions such as cabinet walls.

Dies May Be Inexpensive

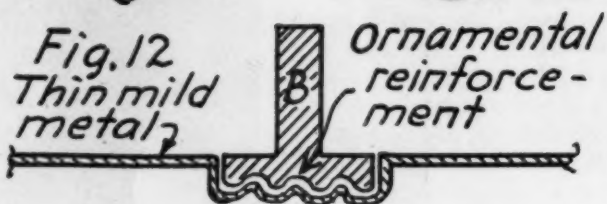
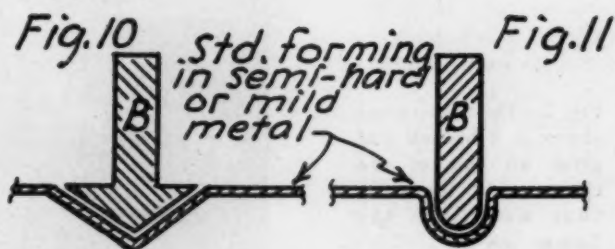
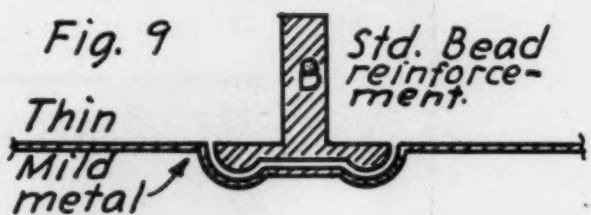
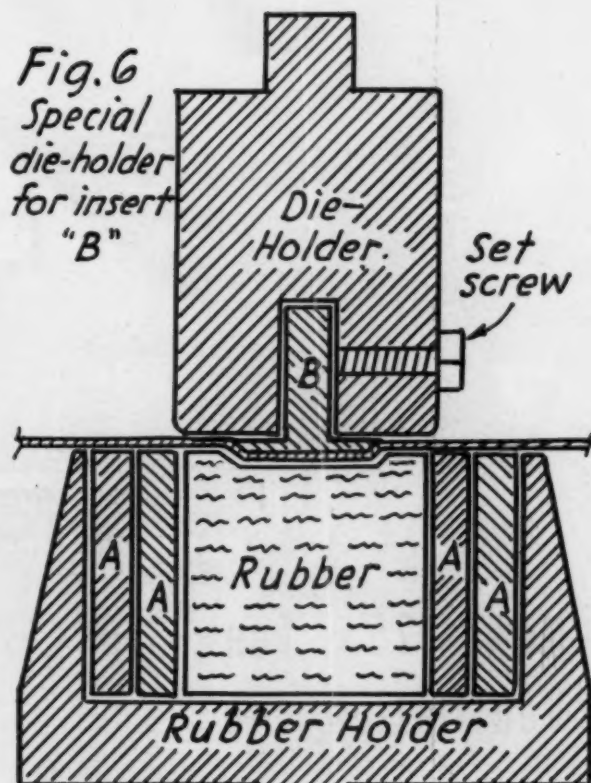
It will be observed, that the formations indicated in Figs. 6 to 12, may be of distinct advantage in certain classes of sheet metal work, in that inexpensive dies "B" may be employed in a common holder and rubber pads may be used for female dies. Beading, especially, as shown in Figs. 7, 8, and 11, is widely used and if the formative means are employed as suggested above, many an otherwise difficult job may be made.

As is evident from viewing the several illustrations, the impressions, feasible of being done in rubber, are only indicative. Each shop and fabricator will have distinct problems to solve, and each will solve them more easily if acquainted with the "means" to solve them. So, for instance, if a shop has two holders, the die and the rubber holder, charted in Fig. 6, the holders being the entire length of the press brake bed, it will be practical to do "beading" in sheet metal, in strips up to 10 feet in length, by one stroke of the press. By the employment of the means here suggested, complete bead-formations can be accomplished by the one stroke, eliminating the often difficult 3 successive operations of braking the angles first, with the "bead" following. In processing shorter pieces of work, two or more varying shapes of the inserts "B" can be mounted in the die-holder, the rubber strip remaining same, and two or more distinct formations can be made at the same time.

Many other uses for the rubber pad will become apparent on studying the several Figures of the drawings. The advantages of using rubber in formative work, are evident: (a) the rubber needs no aligning with the male die, as a steel die does; (b) the rubber pad can remain the same for a variety of bends

(Continued on Page 142)

Fig. 6
Special
die-holder
for insert
"B"



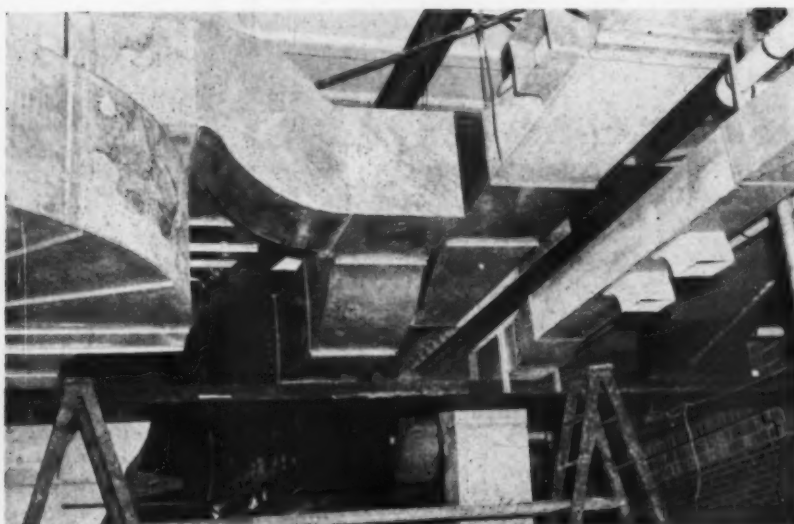


Fig. 1—At the left is a general view of some of the extensive ductwork that the job required. Below is the job shop where all fittings were fabricated on the site.

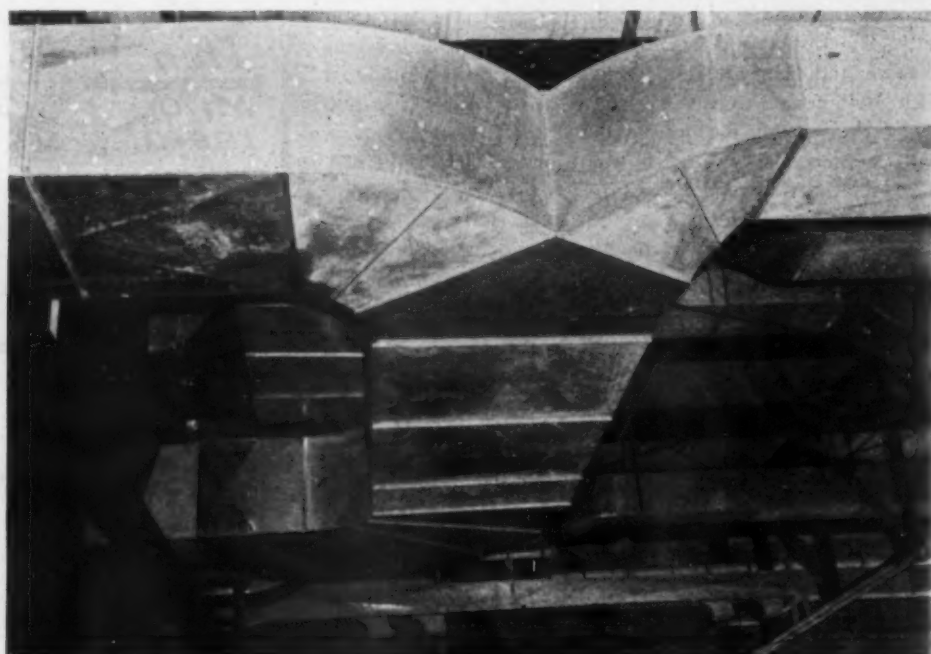
New 125 - Ton Ventilation Job



ONE of the largest post-war heating and ventilating installations in the middle west has been in process of construction this summer outside Sandusky, Ohio. The con-

tractor fabricating and installing the more than 125 tons of galvanized iron duct work in the job is the A. H. Lumm Company of Toledo.

Fig. 2—The illustration shows a Y-branch and gives an idea of the character of the work that went into the Lumm job.



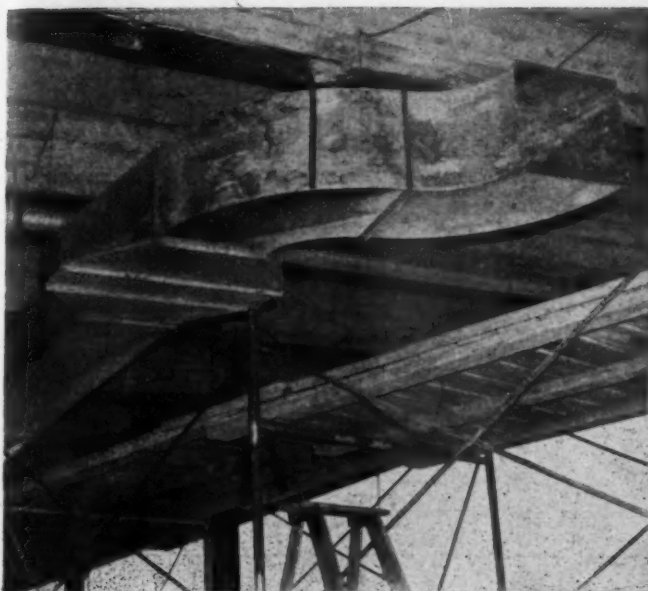


Fig. 3—The photo above shows the way in which a flat section was used to run the ductwork under piping and other obstructions. Below is a duct partially insulated.

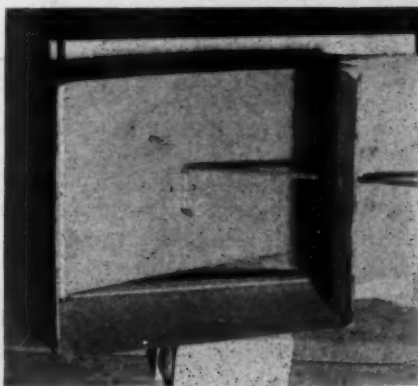
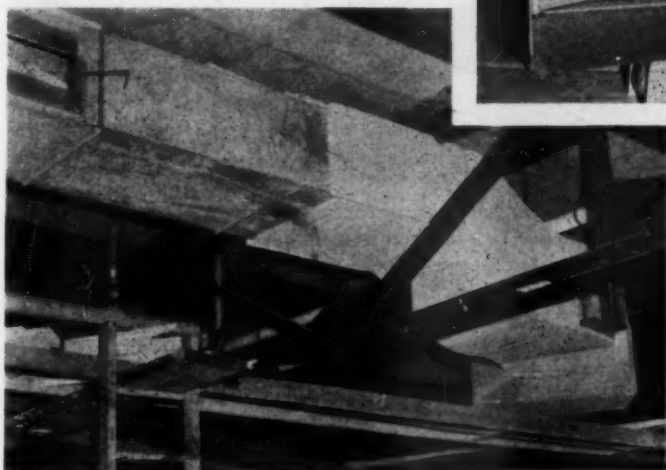


Fig. 3 (Cont.)—In the center is the slide type damper used to get the branch off the main while the picture above is a view of a typical riser.



The contract calls for heating and ventilating the Western Manufacturing Plant, New Departure Division, General Motors Corp. office and engineering building. The building is "H" shaped with the smaller office building in front of the larger engineering wing.

Roughly, the systems in each building are similar—from equipment rooms in the basement and main supply fans in roof pent houses—large risers in each wing of each building supply large mains which run along the one third points of the width of the wing. Air for ventilation is introduced through ceiling diffusers at the approximate center of each office or at uniform division points of large rooms. Exhaust is through grilles in the ceiling of the corridors between outside rooms or down the center line of rooms which occupy the full width of the wing. To let air out of closed offices into the corridor, either a small branch is used from the

exhaust line or a louvered door is installed. The plan shows one wing of the structure with dust locations and sizes indicated.

To fabricate the galvanized iron, the Lumm company elected to make up all straight sections in the Toledo shop. In the job shop (see photo) all fittings were fabricated from dimensions shown on the drawings and from job check measurements.

Straight sections, if large, were made up as top, bottom and two sides with Pittsburgh locks delivered flat to the job and put together in the job shop. Smaller ducts were made in one or two pieces and delivered assembled at the job. To erect the work, rolling pipe scaffolds were used. To assemble sections, standing seam drive cleats were used across the top and bottom with flat drive cleats on the sides. On large ducts, angle iron stiffeners were used on 4-foot centers. Panels of large ducts were cross broken for stiffness.

As the plan shows, all ceiling diffusers are located at the end of branch pipes. To get the branch off the main a special long radius elbow with a slide type damper was devised. This elbow is almost a "pancake" in that it has a wide flange which screws around the opening in the main with a short collar to connect to the branch. The damper is moved in or out to "scoop" the air by a rod which can be locked in balanced position. More than 300 of these takeoffs were required for the job.

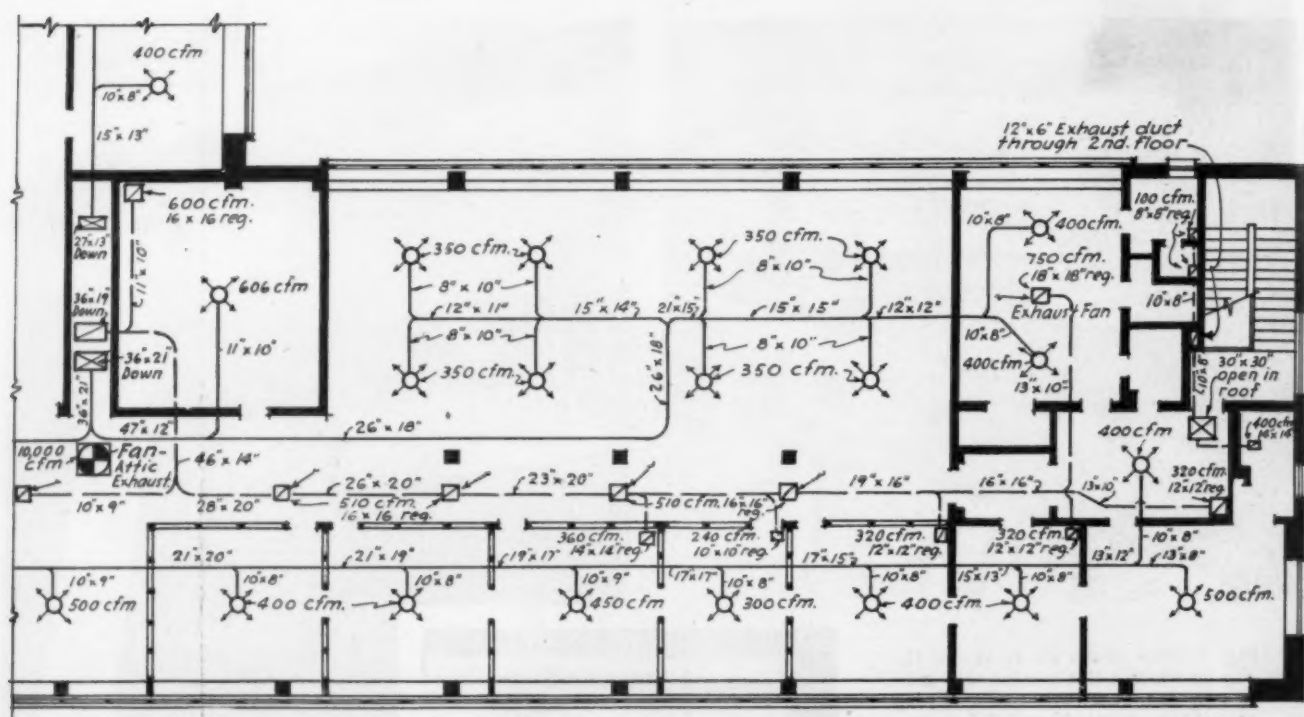


Fig. 4—A plan view of one of the wings of the building showing the main supply lines and the branches as they run off to the various offices.

As some of the photographs show, supply mains are insulated with three layers of 1/4-inch corrugated asbestos paper held in place by wrapped around wires. The insulation was applied by pipe fitters.

All the ductwork in the building will be concealed behind a furred-down ceiling. Where ducts and plumbing interfere, the ducts were put under the pipe work using a special flat section as shown in one of the photos.

Priorities Now in Effect

THE Civilian Production Administration now issues, or authorizes the issuance of, four types of ratings.

The ratings, in the order of their precedence, are AAA, MM, CC and HH. The last two (CC and HH) are of equal priority standing.

The AAA rating, sole remaining civilian rating used during the war by the War Production Board, takes precedence over all other ratings. It is only used in the most urgent situations.

More or less interchangeable with the AAA rating is a directive, which may be issued by the Special Assistance Division under somewhat the same conditions as the AAA rating. There are these differences, however: an AAA rating is extendable by the producer for materials necessary to fill the order; a directive is not. An extendable rating is one which, when it is served on a manufacturer, may be used by him to buy his production materials. He is not permitted to do this in the case of a non-extendable rating. An AAA rating is a broad general order on a specific manufacturer for the material or equipment needed. A directive orders a specific manufacturer to deliver certain specified material or equipment to a named individual.

The MM or military rating (also extendable) can be assigned by the Army and Navy and other military and governmental agencies under the provision of Directive 41.

The CC rating is assigned by CPA under the terms of Priorities Regulations 28. PR-28, known as the "bottle-neck breaker," is the instrument by which CPA may generally help a manufacturer to secure some particular piece of equipment

or some certain material for lack of which he is unable to start production or expand it to his minimum economic rate.

Applications for the CC rating are made on Form CPA-541A under PR-28.

A CC rating generally is not extendable but it may be extended by a distributor or supplier who normally carries the product covered in the rating but who does not then have it in his inventory. He may then extend the CC rating to a producer, but he may not extend it to replace his own inventory.

The HH rating (used only in connection with housing, primarily for veterans) is granted by Federal Public Housing Authority and Federal Housing Administration. It presently covers eighteen different building materials, all in short supply, as listed in Schedule A to Priorities Regulation 33. (AA, July, 1946, Page 55.) HH ratings may also be granted for maintenance and repair of housing accommodations.

Urgency certificates may be issued by the Special Assistance Division of CPA under the very limited terms of Direction 16 to Priorities 13, after application has been made on Form CPA-4425. Such a certificate gives the producer preference over other buyers in the purchase of specified surplus equipment and materials from the War Assets Administration.

Application forms CPA-4425 are obtainable from the CPA in Washington, or at the CPA district construction offices in the field. Application forms CPA-541A are obtainable from the CPA in Washington, from all CPA field offices and from about 150 first class United States post offices. All such applications should be sent directly to the CPA Washington office, where they are processed.

2. SECTION



95

ASSOCIATION ACTIVITIES



SMCNA

In a determined effort to get some action in the present shortage of galvanized iron, which is approaching a crisis for the members of our industry, the Sheet Metal Contractors' National Association, Inc., arranged a series of meetings in Washington on Sept. 25th, 26th and 27th between a committee made up of representatives of the Association and the Sheet Metal Workers Union and the office of the Housing Expediter and the CPA. Representing the Association were Louis Narowetz, chairman, Chicago, Ill., Clarence J. Meyer, secretary, Buffalo, New York, William P. Flanigan, Baltimore, Maryland, C. H. Chambers, Baltimore, Maryland, William Wiedenmann, Kansas City, Missouri and Edwin Scott, editor of the Sheet Metal Worker. For Labor there were Robert Byron, president of the International Association of Sheet Metal Workers, James Close, vice-president, James Moriarity, labor commissioner of Boston, J. Burke, Philadelphia, Penn., J. Fredericks of New York, Edward Carlough, Frank Bonadion and William Wickman.

In view of the fact that many large sheet metal contractors have been using aluminum for duct work the committee conferred with Mr. D. H. Revell of the Reynolds Metal Company with an idea of securing an allocation of sheet aluminum to our industry. It was brought out that sheet aluminum is now selling at 24c a pound for blank sheets, in carload lots and the possibility was discussed of bringing the price down to 21c when sufficient volume is being used for heating installations.

Wyatt Meeting Arranged

Next on the program was a meeting scheduled with Wilson Wyatt, the Housing Expediter, but since he had been suddenly called to St. Louis, members of his staff endeavored to answer all the questions that the committee had come prepared to fire at Wyatt. The committee stated that they had been informed that 40% of mill production of galvanized iron was going into export channels but the Export Department quoted records to the effect that only 4,000 tons a month were being earmarked for export and from a total production of 120,000 tons that figure did not seem excessive. The Supply division indicated that the shortage might be due in part to an unbalanced situation in steel prices which makes it more profitable to produce other products than galvanized iron. And efforts are being made to equalize this pricing situation so that steel production may be enabled to meet the demands made upon it by all its consuming industries.

CPA Contacted

September 26 saw a meeting with a special representative of the CPA and a discussion intended to secure allocation to our industry of the percentage of sheets which had been used in 1940. This amounted to 860,000 tons and it was agreed to request from Mr. John Steelman, O.W.M.R., an allocation to this amount for the next year, beginning with the fourth quarter of 1946. The following day the committee met with Mr. Steelman and presented the facts which had been compiled in the previous meetings and also the letter mentioned above. Mr. Steelman showed a definite interest in the argument presented and promised to take the request

under advisement. All indications point to the success of the Washington conference and there should soon be some clarification of the situation in galvanized iron with a decision made as to whether the heating industry will be allocated the material that it must have to continue operations.

Washington, D. C.
September 27, 1946

Mr. John R. Steelman
O. W. M. R.
The White House
Dear Sir:

Because of the critical steel shortage, especially in galvanized sheets, resulting from priority given Veterans' Housing, and since the warehouse and jobber are not being supplied in the normal manner, the Sheet Metal Industry is faced with an impending shutdown, layoff of workers, and consequent business failures.

Mindful of their responsibility, Labor and Management delegates are meeting in Washington under the auspices of the Sheet Metal Contractors National Association, Inc., who represent 90% of the contractors in their branch of the construction industry, and the Sheet Metal Workers International Association who furnish them with construction labor in the field and fabricators in the shop.

Robert Byron heads the labor group and Louis L. Narowetz is permanent chairman of Labor Relations for the Sheet Metal Industry. We have passed a resolution in joint session to implore Government to urge the distribution of galvanized iron sheets through the established warehouses and jobbers, on a basis of 1940 delivery whereby they distributed 860,000 tons of sheets.

We believe in the priority for Veterans' Housing and Hospitals and that the situation could be much relieved were they to be given access to the large stock piles now stored all over the U.S.A. by the Army, Navy and R.F.C. Less than one-third of our activity is in Housing, and it has become alarming to find two-thirds of our productivity is in jeopardy because of the distributional maladjustment in the output of galvanized sheets caused when others than legitimate warehouse people get possession of them.

We employ G.I. Veterans, trainees, and other service men, and if they lose their jobs the Housing Program will be of little use.

Our men fabricate and erect the majority of our work on the site because ventilation and industrial sheetmetal work are what is known as tailor-made, final measurements being taken in the field. Only 25% of our steel is furnished us as a finished product at the site by manufacturers of items such as fans, motors, hot air units, registers, filters, air washers, etc., so it is apparent that the bulk of sheet metal is handled by contractors who employ sheetmetal workers in the construction industry.

Respectfully submitted,

COMMITTEE FOR
SHEET METAL CONTRACTORS NATIONAL ASSOCIATION
Louis L. Narowetz, Chairman Labor Relations
Clarence J. Meyer, Secretary, S.C.N.A.

COMMITTEE FOR
SHEET METAL WORKERS INTERNATIONAL ASSOCIATION
Robert Byron, General President
James Close, General Vice President

Coming Conventions and Meetings

1947

Jan. 27-30—American Society of Heating and Ventilating Engineers. 53rd Annual. Hotel Statler, Cleveland, Ohio. A. V. Hutchinson, 51 Madison Ave., New York 10, Secretary.

Jan. 27-30—7th International Heating and Ventilating Exposition. Lakeside Hall, Cleveland. Charles F. Roth, manager of the Exposition, International Exposition Co., New York.

Jan. 29-30—National Warm Air Heating and Air Conditioning Association. Hotel Cleveland. George Boeddner, 145 Public Square, Cleveland 14.

Feb. 3-4—Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc. Annual. Homer Selch, 944 Hosbrook St., Indianapolis 3, Ind.

Feb. 9-12—Sheet Metal Contractors' Association of Wisconsin, Inc. 32nd Annual. Schroeder Hotel, Milwaukee. Paul L. Biersach, Secretary, 225 E. Michigan, Milwaukee.

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Swamped with Orders ... and no end in sight!

Homeowners are placing orders for Timken Silent Automatic Oil Heating Equipment at a rate many, many times greater than in the best pre-war year.

But the important thing is: *Hardly anyone ever cancels. The more burners Timken Dealers install, the longer their waiting lists grow.*

What's behind this universal desire for a Timken and nothing but a Timken? There have been no promises of exceptionally fast delivery, no trick advertising campaigns, no circus-type promotions.

There can be only one answer: *Homeowners are convinced Timken quality is the best possible buy.*

Naturally, we are proud of this expression of confidence in Timken Products—this willingness of people to wait their turn for installations. And Timken factories are doing their utmost to fill orders as rapidly as possible.

Swamped with orders? Sure! — up to our ears.

But that's the way we like it—that's the way we hope it will continue to be.

COMING SOON: New three-position flame rim grill!—for improved efficiency with ALL oils. Watch for public announcement.

TIMKEN
Silent Automatic
HEAT

TIMKEN SILENT AUTOMATIC DIVISION
THE TIMKEN-DETROIT AXLE CO., DETROIT 32, MICH.



Association Activities . . .

National Association

On the afternoon of September 26th at the Drake Hotel in Chicago, a meeting of the following members of the Publicity and Merchandising Committee was held.

Messrs. J. R. Scott, Chairman

E. C. Carter

Frank Vaughn

E. P. Hayes

J. H. Manny

Harry Gurney, representing Mr. Grover of Surface Combustion Corporation.

President Mehrings, Fred Shuster and George Boeddener also attended the meeting.

Mr. Fred Shuster of Griswold-Eshleman Company read a message from Mr. Ed. C. Powers, who is in charge of the Publicity Department of Griswold-Eshleman Company. In this message, Mr. Powers outlined the results of our publicity activities to date, along with plans for the future.

Mr. Shuster also presented suggestions for various dealer helps, such as, post cards, store display signs, Neon Indoor Comfort signs, etc. Mr. Scott, Chairman, asked Mr. Shuster to prepare a full list of dealer helps with the thought in mind that it will be presented to the Publicity and Merchandising Committee at their next meeting.

The committee also recommended that Griswold-Eshleman Company prepare a suggested letter to be mailed by manufacturers to dealers in promoting the use of the booklet. This might be accompanied by a pamphlet, including illustrations.

Mr. Shuster also displayed some of the finished art work in connection with the consumer's booklet, which work had the full approval of the committee.

The members of the Publicity and Merchandising Committee and Application Engineering Advisory Committee attended a meeting September 26th at the Drake Hotel in Chicago. Those present were:

Publicity & Merchandising Committee Application Engineering & Advisory Committee

J. R. Scott, Chairman

W. D. Redrup, Chairman

E. P. Hayes

John W. Norris

J. H. Manny

Gordon Kinsman

Harry Gurney (Rep. W. J. Grover)

Hugh Thompson

A. M. Vorys

Frank Vaughn

Ed. C. Carter

Also, the following—Mr. F. E. Mehrings, President

Elmer L. Sylvester, Florez, Inc.

Henry Knowlton, Florez, Inc.

Fred Schuster, Griswold-Eshleman Co.

Lee Wilcox, Surface Combustion Corp.

L. W. Sutherland, Surface Combustion Corp.

Geo. Boeddener

Mr. Scott was chairman of the combined committee meeting.

The meeting was called for the purpose of having Florez, Inc. of Detroit present their proposal covering the organization and development of the Association's Dealer Training Conference Program. Mr. Sylvester of Florez, assisted by Mr. Knowlton, presented in chart and script form a complete outline of the procedures to be followed at the training conferences. These conferences will include visual training through the use of sound slide films, short talks and visual cast slides. A complete instructor's manual will be furnished which will make it possible to have as many instructors in the field as will be found necessary.

On motion of J. H. Manny, seconded by Frank Vaughn, the following motion was unanimously and favorably approved by the above committees:

"That \$25,000 of the Advertising, Publicity and Dealer Training funds be provided for the fulfillment of the Florez, Inc. proposed program and that the Steering Committee, consisting of John W. Norris, W. D. Redrup and J. R. Scott be authorized to guide and control the expenditure of this fund of \$25,000 which has been appropriated."

It was recommended by the Committees that the Indoor Comfort sound slide film, and possibly other material, be made available to trade schools, night schools, association conferences, dealer—architect—builder and consumer groups.

(Following the unanimous vote of the acceptance of the Florez proposal at the meeting by the two committees, Florez submitted a detailed written outline confirming their proposal. The proposal has been formally accepted for the Association by President Mehrings and Geo. Boeddener, acting for the two committees. The Publicity and Merchandising Committee were authorized at the December 6, 1945 meeting of the Board to proceed with the overall Advertising, Publicity and Dealer Training Program.)

Fox Valley

In September, the Fox Valley Furnace & Sheet Metal Contractors Ass'n (Illinois) celebrated their thirteenth anniversary with a "President's dinner" in the home of President Jack Stowell, in Aurora. Nine men who were at the first meeting were present along with nearly all Association members and some guests.

In welcoming the members President Stowell said that the single biggest accomplishment of the association was the cementing of strong friendships among the men in the industry in the valley in place of the bitter, suspicious attitudes of the men before the association was organized.

In the years since, the association has been in the forefront in offering heating schools, schools in cost keeping, schools on estimating and the associations "field days" have become legendary.

Secretary Bill Stevens reported that the apprentice and GI training committee had prepared a full training program (AA, April, 1946) and had the program approved by the Illinois Board of Education.

J. D. Wilder, American Artisan, briefly described the latest effort of the Sheet Metal Contractors National Ass'n to obtain sheets through the work of a special committee sent to Washington. (A report of this committee's work is in this issue).

Regular meeting of the Fox Valley Furnace and Sheet Metal Contractors Association was held at the Black Hawk Restaurant, Tuesday evening October 22, 1946.

President Stowell read the complete report of the meeting held at Washington between labor and officers of the Sheet Metal Contractors National Association and John Steelman and Wilson Wyatt's staff.

Byron D. Barker, district manager of the Milcor Steel Co., gave a most interesting and instructive talk on the future of the furnace and sheet metal business. He said that: (1) We are to have a day of reckoning, which will come as soon as materials are more readily available. At that time real salesmanship will be necessary. It was his belief, supported by facts, that production could easily exceed the demand. Since 1938 one third of all the steel made in this century has been produced. The 1945 production of steel was 45% over that of 1939. Sheets are scarce because of O.P.A. price ceiling and on account of strikes.

William B. Stevens,
Secretary



**TO ENGINEERS OF
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*in Warm Air Heating,
Ventilating, Air Conditioning,
Evaporative Cooling and Indus-
trial applications that require
BLOWER ASSEMBLIES*

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are manufactured *exclusively* for the building
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Morrison Engineering and 3-Piece Construction
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MORRISON PRODUCTS, INC.

East 168th Street and Waterloo Road

CLEVELAND 10, OHIO

Association Activities . . .

Buffalo

This local furnace installers organization changed their name to "Buffalo Warm Air Heating Association" at a dinner meeting in Buffalo, October 2nd.

An exchange of correspondence with the Governor of the State of New York revealed that the State Commissioner of Housing was going to investigate the possibility of securing galvanize iron sheets since the association had failed to get results from Washington.

Lawrence J. Monahan of Surface Combustion Corp. was the speaker and he warned the contractors that unless they were going to give their installations more personal attention they were going to find the local gas utilities back in the heating business. The quality of the present type of furnace dealer must be improved to avoid prevailing complaints and he endorsed the educational program this group is conducting along with their regular meetings.

A lecture on the proper locations for registers and grilles was given using display charts. Attendance—65.

M. J. Rodman, Sec'y

Chicago

The Furnace, Air Conditioning & Sheet Metal Institute has been submitting regular reports of their bi-weekly meetings but space restrictions have made it difficult to publish these reports. The Institute has been carrying on a very constructive program of presenting talks on subjects of current interest at their meetings and recent topics have been: sales, service and installation of stokers and the G.I. Bill of Rights and its training provisions. A training program is under consideration by the Institute.

Los Angeles

The Institute of Gas Heating Industries of Los Angeles, California held their September meeting at the Stevens' Nikabob Cafe. The discussion touched upon CPA order PR33 (Page 55, October AA) and its possible effect on the heating industry. Also covered was the publicity program of the Institute and the window decals which were distributed. Methods of clearing up the local license muddle were brought out and a resolution passed to request more building inspectors.

The new managing director was introduced to the membership. He is Ernest W. Kimmell of Santa Monica.

O. N. Simmons

Carolinas

The September and October issues of The Carolinas Roofer have been received and they contain some items of general interest. September discussed glass roofing felt, which is a fairly recent development and seems to be working rather well on some installations.

October carried the usual amount of news of members and their activities along with a humorous story of a contractor who lost a job because he bid high when he saw some of the outlandish specifications which the architect had put in the job. Apparently a little more realism should invade the ranks of the architects.

Cook County

Sheet Metal Contractors Association of Cook County held their first regular meeting of the fall season at the Builders' Club, 228 No. LaSalle Street at 12:15 Wednesday noon, September 18th.

President Lee Herghoefer presided at this meeting. The feature of the meeting was the showing of a highly instructive sound film in color entitled "Copper and its Alloys" depicting the many uses of copper. Mr. LaThomas of the Revere Copper & Brass Corporation was in charge of the presentation and answered queries in the question period.

An application for membership was made by Steel Sash Service Company of 4911 No. Lincoln Avenue.

Wm. J. Perkinson

Florida

The Bulletin of the Florida Association has been reaching our office regularly but we have not had an opportunity to review it in recent issues. However, John Caldwell has been doing a good job of keeping the members informed of things of interest to them.

One Bulletin, in particular, dealt with the discussion of the Florida "Right-to-Work" amendment by the Attorney General of the state, Tom Clark. This amendment gives the employer the constitutional right to hire anyone, regardless of closed-shop agreements and has been greeted with storms of protest by the labor leaders of the state.

Furnace Blower Group

Obtaining accepted test methods which will enable the furnace designer to determine the resistance of a combined blower-furnace assembly will be the first project to be undertaken in the new research program, to be conducted by the Furnace Blower Manufacturers Association at the University of Illinois, according to Homer F. Brundage, President of the Association.

Because the initial research problems will be closely linked with those of furnace manufacturers the new program will be collaborated with the research program at Urbana sponsored by the National Warm Air Heating and Air Conditioning Association.

To guide the research program in its first stages a newly appointed Engineering Committee has been formed with Gordon Kinsman as chairman. Other committee members include Marion Levy, James Hagerman and Gerald Schwartz.

Plans for the first testing plant are already being considered. It will consist of a large plenum chamber containing four different flat-plate orifices, calibrated in position. The chamber will contain an auxiliary 12-inch blower driven by a ¼ horsepower motor.

Complete measurements of air deliveries, pressures and power input will be included in the data which will be available to manufacturers in addition to a complete description of the test set-up including the flat-plate orifices and the calibration curves. Out of this research work, a standard test method will be evolved, which will be available to all furnace manufacturers for testing the combination of a blower with a furnace.

For the present the research work will be carried on by Professor S. Konzo, long connected with the warm air heating and air conditioning research program, and Robert W. Roose, Research Assistant. Two graduate students, Norman Buckley and Edward Zieve, will work very closely on the project.

New G. I. Homes Need The G. I. Home Security Plan



THE G. I. protected you
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your chance to provide
protection for him.
From what? From financial
insecurity and the danger of
immediately losing the
home should the bread-
winner die.

THE G. I. Home Security Plan of Allied Building Credits costs only
a few cents each month, well within even the most
modest budget of young home buyers. It guarantees that during the
difficult period of uncertainty which follows the death of the mortgagor, a
continuation of full monthly payments will be made for the family.

This worthwhile plan is finding eager acceptance by home buyers everywhere.
It will gain you much good will, valuable publicity, and invaluable word
of mouth advertising to offer the G. I. Home Security Plan. Write, without
obligation, for complete information.

Complete Instalment Note and Mortgage Services for the Building Industry

ALLIED BUILDING CREDITS, INC.

2504 FIRST NATIONAL BANK BUILDING

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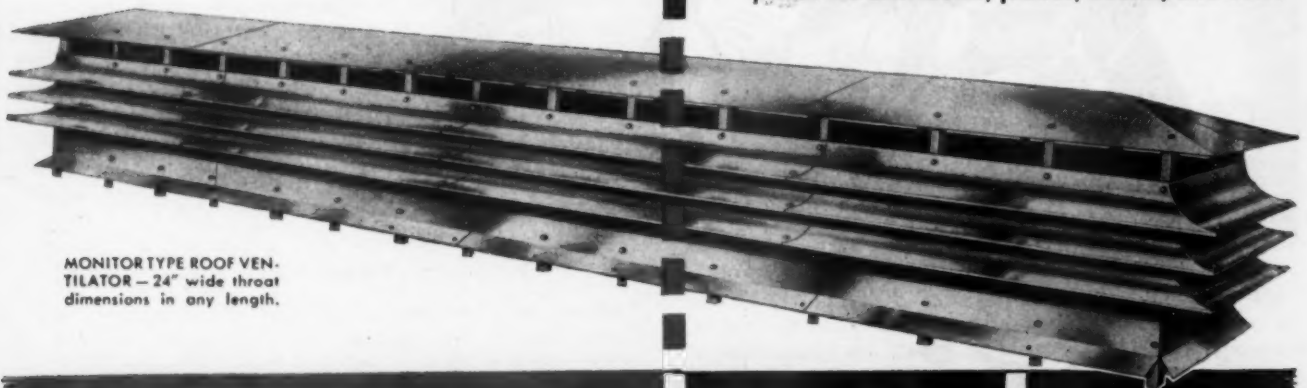
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PRINCIPAL
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AIRJET

factory policy



VENT FLUE CAP—Available in 4" and 6" diameters.

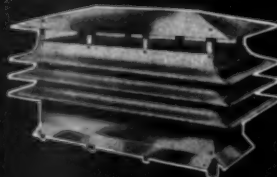


MONITOR TYPE ROOF VENTILATOR—24" wide throat dimensions in any length.

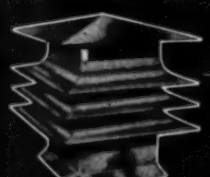
- 1** Volume production of the best natural down draft ventilators underselling all competition.
- 2** Complete support of the trade by placing all business through legitimate dealers—no factory competition.
- 3** Trade discounts are for the trade—not for prime contractors and users.
- 4** The manufacture of no accessories which sheet metal shops can produce successfully.
- 5** Protection of trade territories, practices, and prices for distributor, jobber, dealer, and user.

Roof Ventilators Vent Flue Caps

Unprecedented demand for Airjets necessitates the opening of new franchises.



RECTANGULAR TYPE ROOF VENTILATOR—Available in the following throat dimensions—12" x 24", 12" x 36", 12" x 48", 24" x 48" and 24" x 72".



SQUARE TYPE ROOF VENTILATOR—Available in 12" x 12" throat dimensions.

SEND FOR COMPLETE INFORMATION

MANUFACTURED BY

C.R. Gelert

C O M P A N Y

35 NORTH RAYMOND AVENUE
PASADENA 1, CALIFORNIA

C. R. GELERT COMPANY
35 North Raymond Avenue
Pasadena 1, California

Please send me your new catalog No. 446 on Airjet Roof Ventilators and Vent Flue Caps.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

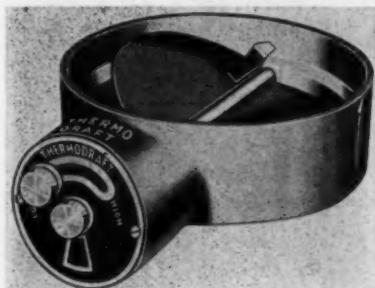
Equipment Developments

For your convenience a number has been assigned to each item. Circle the items in which you are interested on the coupon on page 108 and mail to us.

△ Indicates manufacturer not listed in 1945 Directory.
● Indicates product not listed in 1945 Directory.

129—Thermodraft

No-No Specialty Company, Quincy Avenue at East 69th Street, Cleveland, Ohio, offers "Thermodraft," a new thermostatic damper control. This new device is designed particularly for coal or wood-burning stoves and ranges, and may also be used effectively on some



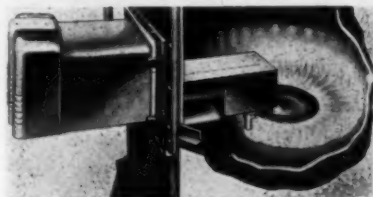
furnaces. It is easily installed in any convenient joint in the chimney-pipe—no cutting or special fittings and no electrical connections are required.

"Thermodraft" operates a flue damper by means of a bi-metal coil, which is affected by temperature changes of room and chimney flue. It is adjustable to provide any degree of heat required. Sizes for 6", 7" and 8" flue pipes.

130—Conversion Burner

Handley Brown Heater Co., 209 E. Washington Ave., Jackson, Mich., has developed a new improved Fuel Door Gas Conversion Burner.

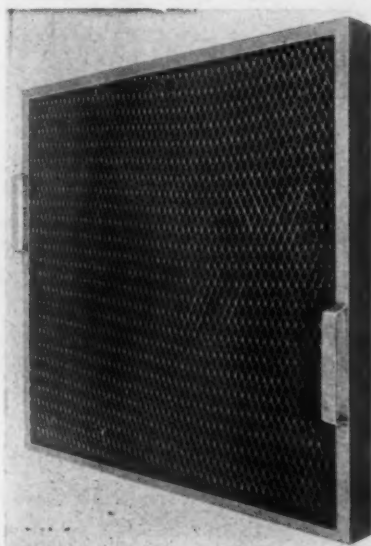
This model has an adjustment which makes it possible to vary the input between 50,000 Btu and 200,000 Btu, and is adaptable to both furnaces and boilers.



This single burner meets the requirements for nearly all domestic installations through its adjustability and the manner in which it is installed eliminates much of the difficulty of conversion to gas.

131—Air Filter

Air Devices, Inc., 17 East 42nd Street, New York City 17, offers the new all metal, permanent, cleanable Agitair FM air filter, designed to perform efficiently at an approach velocity of 432 fpm handling 1200 cfm through a 20x20 inch filter panel.



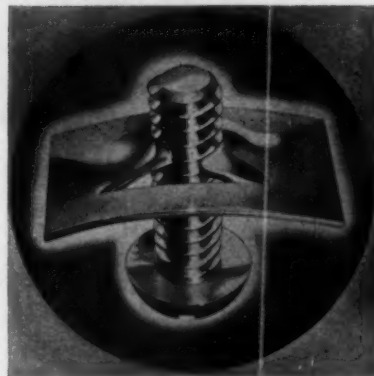
The Agitair FM operates at high velocities with sustained low resistance to air flow, maximum dust holding capacity and extremely high dust holding efficiency. Easily removed for cleaning and servicing the new Agitair FM can be quickly reinstalled to peak efficiency.

132—Welding Rod

Eutectic Welding Alloys Corporation, 40 Worth St., New York 13, have developed a new stainless steel, flux-coated welding rod for the AC-DC arc welding of stainless steel at lower base metal temperatures than heretofore possible.

Since the weld deposits are made at a faster rate the weld metal compares favorably with the base metal and the use of a lower temperature minimizes the effect of the weld heat on the corrosion resistance and physical properties of the base metal. The electrodes are made in all popular sizes.

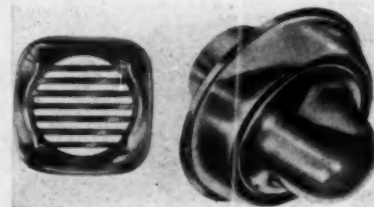
133—Speed Nut



Tinnerman Products, Inc., 2065 Fulton Road, Cleveland 13, have announced a new line of heat-treated spring steel speed nuts. Designated the C7000 Series the new speed nuts fit the ten most popular sizes of machine screws and sheet metal screws. They have been engineered according to the diameter and strength of the screw with which they are used and are more compact and provide higher tensile strength. Moreover they are lower in cost than the conventional threaded nut and lock washer.

134—Vent Fan

Stewart Manufacturing Co., 3209 E. Washington St., Indianapolis 1, Ind., is starting production on the domestic Kitchen-Aire Six and the Commercial Kitchen-Aire Eight ventilators, electrically operated.



The Kitchen-Aire is connected to the ceiling grille by a small six-inch duct, hidden between the joists. Blade and motor are located in a metal enclosure.

Motor cover and deflector offers protection for the operating mechanism, and resists wind, rain and snow. A patented automatic back draft damper provides a double safeguard against draft or excessive heat loss.

Equipment Developments

* For your convenience in obtaining information regarding these items, use the coupon on page 108.

140—Shop Aid

Designed to aid in solving forming and punching problems for the sheet metal industry, the L. W. Verson Bending and Punching Calculator is now available without charge to all shop supervisors, engineers, and executives in metal-working plants. By the simple turn of a wheel, this handy device gives the die opening and press capacity required for making 90° bends in mild



steel and stainless steel of all commonly used gauges. For punching operations, the calculator indicates the tons per hole required to punch holes of eight different sizes in mild steel plate of a wide variety of gauges.

The calculator may be obtained free of charge by writing Verson Allsteel Press Company, 1355 E. 93rd St., Chicago 19, Illinois.

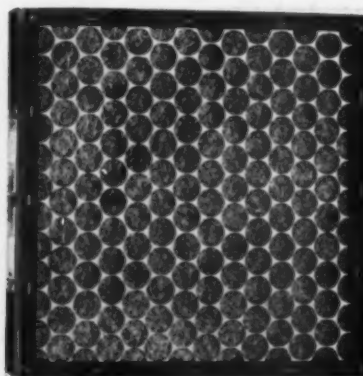
141—Monel Rivets

Cherry Rivet Co., 231 Winston St., Los Angeles 13, has now made use of Monel as a material for the Cherry Blind Rivet. The rivets have been available in aluminum, brass and steel and now Monel is being used because of its strength, ductility and resistance to corrosion.

The Monel rivet is made in the same sizes as those of the other materials and is identical in construction and method of application.

142—"Spider" Filter

Wilson and Co., Air Filter Division, 4100 So. Ashland Ave., Chicago, are announcing their new replacement filter unit for warm air and air conditioning systems making use of their Spider-Web natural hair filters.

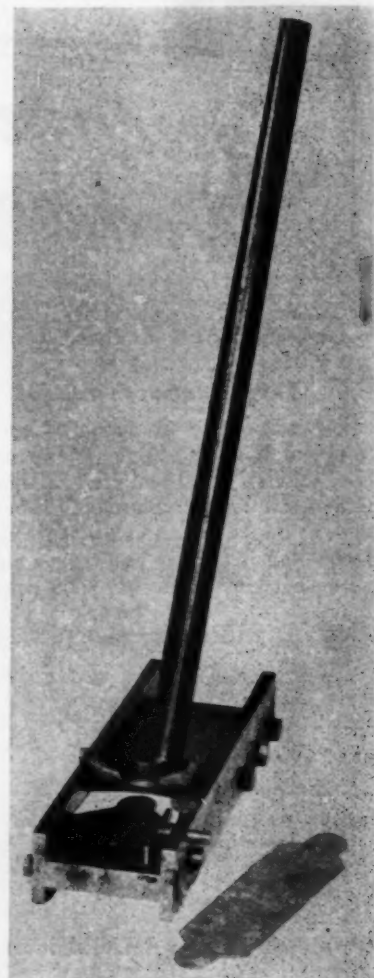
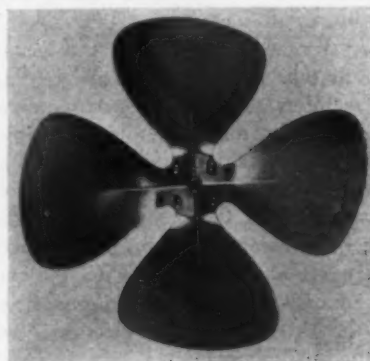


The filter is marketed in a "Honeycomb" casing which is clean and easy to handle. An extensive advertising campaign in the trade papers is being used to introduce the filter to the heating dealer.

143—Silent Fan

Motionair Company, 9242 Beverly Blvd., Beverly Hills, Calif., has developed a new silent fan blade which moves a large amount of air with a relatively low expenditure of energy. The Motionair blades are precision spaced and designed in accord with aero-dynamic principles of single curvatures for air flow.

Drawings, samples and rating data are available from the manufacturer.



144—Cleat Notcher

Reiner and Campbell Co., Inc., 665 Norwood Terrace, Elizabeth, New Jersey, have available a new "Drive Cleat Notcher" which will notch drive cleats up to 3" in width and has an adjustable gage for different size cleats.

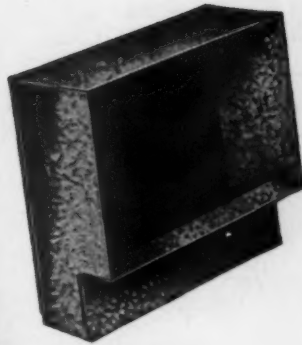
The dies are made of hardened steel with full clearance and the notcher has a build-in stop. Operated by hand or foot it has capacity of metal up to 22 gauge.

145—Calculator

The Smithson Company, 89 Feronia Way, Rutherford, New Jersey has announced the development of a "Rapid Radiation Calculator" which has as its purpose the figuring of the radiation requirements of any given room. Primarily designed for Steam and hot water systems the calculator can also be adapted to figure the register requirements for a warm air heating job. The calculators are priced at \$3.00 and may be obtained from S. Smithson, P. O. Box 67, Rutherford, N. J.

"a dollar is still a dollar"

for
greater
profits
specify



The reputation — ease of installation — durability and customer satisfaction have made C&L Lamneck galvanized furnace pipe and fittings the first choice of warm air heating contractors everywhere.

Your jobber is doing his best to meet your requirements as fast as steel becomes available. Write for the C&L Lamneck Simplified Catalog.

C&L also carries: Fire Pots
C&L Hoffman Water Heaters
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ware, Panic Exit Devices
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**FURNACE PIPE
AND FITTINGS**

CLAYTON & LAMBERT MFG. CO.
Sales Office: LOUISVILLE 10, KY. • Factory: MIDDLETOWN, OHIO

Equipment Developments

For your convenience in obtaining information regarding these items, use the coupon on page 108.

135—Float Valve

Detroit Lubricator Company, 5900 Trumbull Ave., Detroit 8, has announced a new float valve, the CRC-246, developed to meet the requirements of modern vaporizing oil burners. This new valve connects directly to the burner nipple and provides a constant rate of flow regardless of the size of the inlet



head. This mounting allows placing the fuel supply tank flush with the top of the valve, eliminates "dying fire" and makes possible lower overall height of the heater. Another feature is that the valve will operate even when 5° out of level.

136—Thermostat

Cam-Stat, Inc., 2037 La Cienega, Los Angeles has introduced a new and compact room thermostat which is designed to blend with any room interior. It is



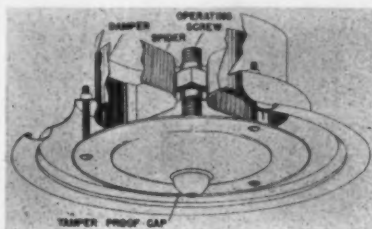
no larger than an ordinary light switch and extends less than an inch from the wall.

As a safety measure there are no electrical parts exposed beneath the screen and all current carrying parts are enclosed within the bakelite housing behind the wall plate.

Cam-Stat model CD109A is suitable for either line or low-voltage currents and can be installed in vehicles and ships as well as in domestic and commercial jobs.

137—Air Damper

W. B. Connor Engineering Corp., 114 E. 32nd St., New York 16, have perfected a new simplified, lightweight air volume damper for use with their KNO-DRAFT High Velocity Air Diffusers.



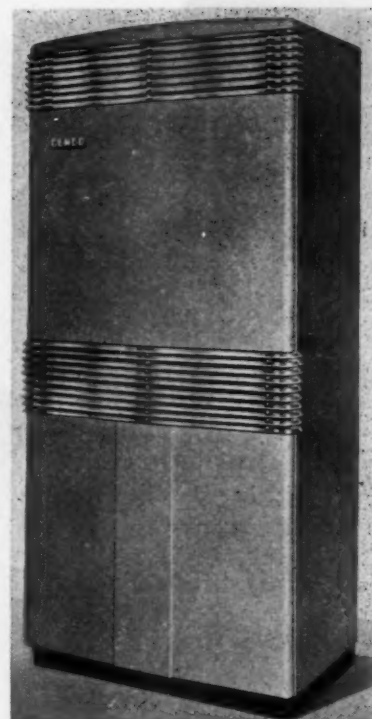
Made of aluminum, with a reduction in the number of parts the damper is operated very easily by means of a screw in the lower cone. Any air volume is quickly obtained through adjustment of this operating screw and thus flexibility is a notable characteristic of the damper.

A handbook is available from the manufacturer.

138—Electronic Timers

Photoswitch, Incorporated, 77 Broadway, Cambridge 42, Mass., offers Photo-switch Electronic Timer, Type 30HL1, an automatic timer for intervals from 1/20th second to four minutes. It is recommended particularly for process control and machine timing when long-life, repeat-cycle operation, or precise accuracy is a prerequisite. This timer is used to control such equipment as spot-welders, grinders, and drilling machines.

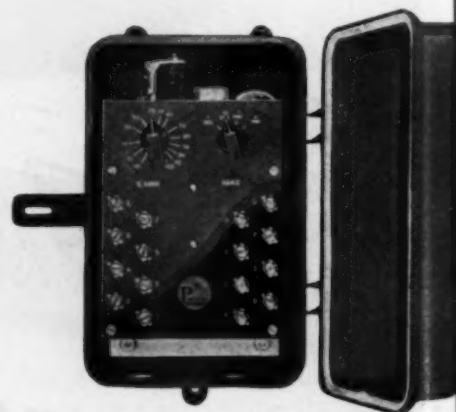
Type 30HL1, provides four basic types of timing: interval, delayed action, automatic repeat, and programming, as well as many variations of these four fundamental types.



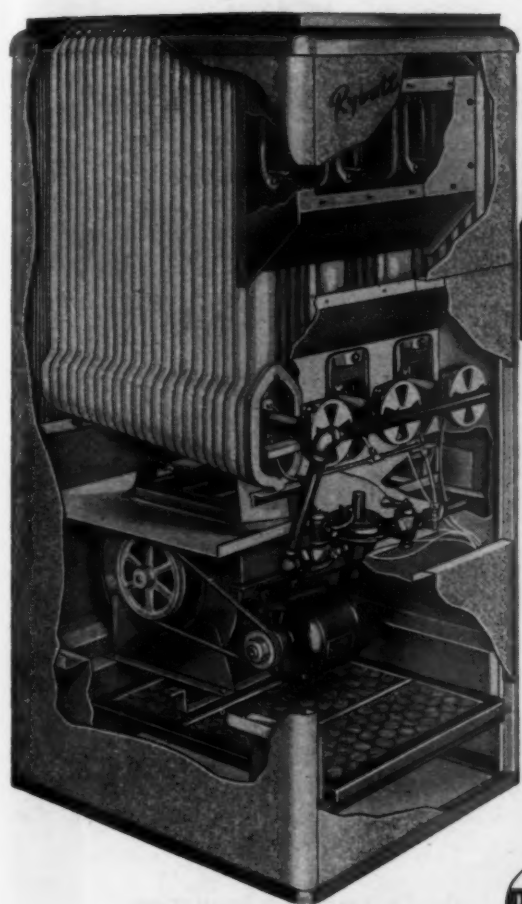
139—Air Conditioner

General Engineering and Manufacturing Co., 1523 So. Tenth St., St. Louis 4, have announced the development of the new "Gemco" packaged air conditioner for use in stores, offices, restaurants, barber shops and like installations.

Features of the unit are economy and simplicity, light weight and freedom from frequent service attention. It has an aluminum semi-hermetically sealed motor and compressor housing. The compressor is a two-stage type designed by Gemco and the motor is cooled by the refrigerant gas rather than by the conventional use of oil. The use of aluminum affords a considerable saving in weight in the unit.



Photoswitch Timer
(See Item at Left)



Rybolt GAS FURNACES

Scientifically Engineered to
meet Modern Heating Needs

Series RG 54
Forced Air 3 Sizes
70,000 B.T.U.
105,000 B.T.U.
140,000 B.T.U.

★
Series RG 53
Gravity 3 Sizes
60,000 B.T.U.
90,000 B.T.U.
120,000 B.T.U.



Your dealer's bid for the gas heating business depends on getting winter air conditioners and gravity units that are compact, efficient and thoroughly modern in every detail of engineering and appearance. A special feature of the new Rybolt gas-fired winter air conditioners is their universal application for basement or first floor utility room. While unusually compact they incorporate sturdy, long-life castings and heavy-gauge furniture steel casings which assure long dependable service.

Modern in design with smooth rounded corners the casings are handsomely finished in hammered two-tone gray baked enamel. Casing panels are insulated with corrugated steel liners and aluminum surfaced air cell asbestos.



Heat exchangers of all models include two or more one-piece cast iron combustion chambers whose vertically corrugated and streamlined design provides efficient heat transfer and low resistance to the flow of air being heated. Burners consist of cast iron bodies with stainless steel ribbon ports for sharp, clean, quiet flame and excellent combustion. Installation is relatively easy due to detailed assembly instructions and uniformity of parts.

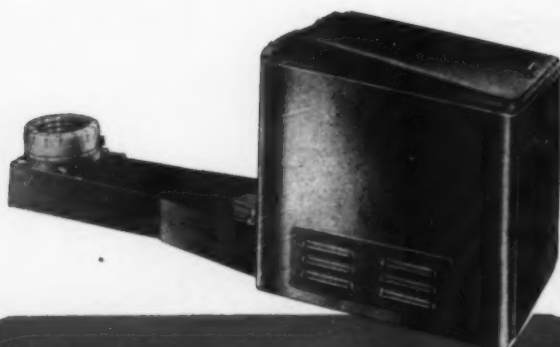
Approved by the American Gas Association for use with natural, mixed or manufactured gas.

THE RYBOLT HEATER COMPANY

615 MILLER STREET



ASHLAND, OHIO



*Concentrate your
selling on lines
you can deliver!*

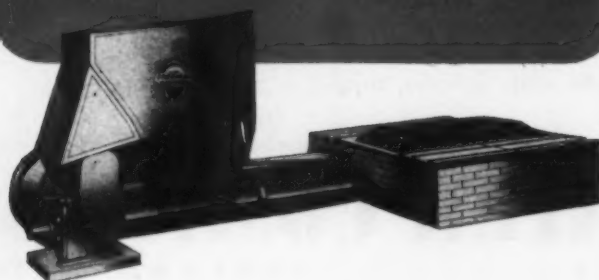
FREEMAN
LONG LIFE
STOKERS
FIRST CHOICE OF AMERICA'S
FOREMOST HEATING ENGINEERS

**ARE AVAILABLE FOR
IMMEDIATE SHIPMENT**

...all sizes

UP TO 1200 POUNDS PER HOUR CAPACITY

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910 SO. MICHIGAN AVENUE, CHICAGO 6, ILLINOIS



New Literature

For your convenience in obtaining copies of New Literature use the coupon on this page.

208—Machining Aluminum Alloys

Reynolds Metals Company, 2500 So. Third St., Louisville 1, has brought out the latest in its series of books on industrial use of aluminum alloys, titled "Machining Aluminum Alloys."

This beautifully printed manual has 124 pages and contains complete data on the proper speeds and feeds for the various machining operations involving aluminum alloys. Machining characteristics are also covered and the manual further lists important points to be cautious of when handling aluminum.

Price is \$1.00 and the book may be obtained from Department 47 at the above address.

209—Williams Warmolators

The Williams Radiator Company of 3115 Beverly Blvd., Los Angeles 4, has issued some new promotional literature on their Vented Wall Warmolators and also their convector type Warmolator. These pamphlets give sizes and descriptions of the various models of this equipment and also contain testimonials from many users of the product.

210—Thermobank Insulation

Kramer Trenton Co., Trenton 5, has just brought out their Bulletin No. 16. This 40 page booklet gives a comprehensive coverage of low temperature applications of insulation. They state that the information should be of value to the application engineer in the freezing temperature field.

It also contains rapid selection tables for the selection of low side and high side equipment for freezing jobs.

211—DoAll Book

The DoAll Company, 1301 Washington Ave., Minneapolis 4, has published a booklet entitled "Your Life In the Machine Age" and accompanied it with a colorful wall chart which makes a graphic presentation of the history of the Machine Age.

Free copies are available from the DoAll Company.

FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.
Chicago 2, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature."
(Circle numbers in which you are interested):

129	130	131	132	133	134
135	136	137	138	139	140
141	142	143	144	145	
208	209	210	211	212	213
214					

Name.....

Company.....

Address.....

Are you manufacturer.....Jobber.....Dealer.....

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FEDERATED SOLDERS are tops in quality, uniformity and dependability. They have maximum strength and fluidity. They possess excellent bonding qualities, fine grain structure and uniform melting points.

All of these properties add up to quicker, easier application . . . more production in less time. That's economy—and satisfaction. Try Federated Solder.

Federated Solders are available in the following types:

BAR • STRIP • TRIANGLE • DROP
ACID CORE • ROSIN CORE • PIG
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MADE IN ALL STANDARD COMPOSITIONS

SPECIAL ALLOYS TO SPECIFICATION



FEDERATED METALS DIVISION
American Smelting and Refining Company
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Nation-wide service with offices in principal cities

ALUMINUM • BRASS • BRONZE • BABBITT • DIE CASTING ALLOYS • LEAD PRODUCTS • SOLDER • TYPE METAL • ZINC DUST



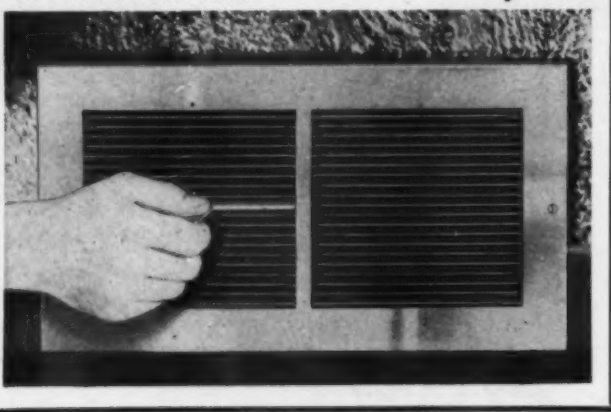
H & C No. 751 Supply Register

A Sweet Combination—

No. 751 Supply Registers in the high sidewall, and No. 74 Design Returns in the baseboard. It's a sweet combination from more than one angle. In the first place the No. 751 with the incomparable Turning Blade Valve will give you the most thorough air distribution it is possible to obtain. Secondly, the fins in the No. 74 Design Intakes parallel the baseboard—which makes for better harmony, finer appearance. And finally, when you use the fast production No. 740 or No. 747 Returns, you're helping us to step up production and to supply more of those much needed register line items. Think it over.

Our new No. 46 Catalog shows our streamlined and condensed postwar line of registers and accessories. Ask your jobber or write us for a copy.

H & C No. 747 Return Intake



HART & COOLEY MANUFACTURING CO.
World's Largest Manufacturers of
Registers, Grilles, Furnace Accessories
HOLLAND • MICHIGAN

In Canada: Hart & Cooley Mfg. Co., Fort Erie, N. Ontario

New Literature

For your convenience in obtaining copies of New Literature use the coupon on page 108.

212—Rempe Catalog

Rempe Company, 340 N. Sacramento Blvd., Chicago 12, recently published their new catalog No. 120 on fin coils and custom built air conditioning units for low temperature cooling. This catalog contains tables and data which will aid the engineer in selecting the proper equipment for such installations as walk-in coolers, display cases, florist boxes and air conditioning.

213—Data Sheets

American Chemical Paint Co., Ambler, Pa., has issued a new booklet listing the rust proofing chemicals, protective coatings, metal cleaning chemicals and inhibitors which they manufacture. In the form of data sheets the pamphlet describes various applications of metal protecting compounds.

The booklet is available on request to the manufacturer.

214—Consumer Literature

American Radiator and Standard Sanitary Co., P. O. Box 1226, Pittsburgh 30, has just released seven new booklets giving extensive information of the products of the company such as: American heating boilers, Standard brass fittings, Sun-beam winter air conditioners, Kenwood warm air furnaces, etc.

WHITNEY LEVER PUNCHES

No. 4B PUNCH



Length—8 1/2 inches. Capacity—1/2-inch hole through 16 gauge. Deep Throat—2 inches. Weight—3 pounds. Punches and Dies—1/16" to 9/32" by 64ths.

No. 91 PUNCH



CAPACITY
1/2-inch hole through 1/4-inch iron; 3/8-inch hole through 3/16-inch iron; 2-inch hole through 1/4-inch iron. Depth throat, 5 inches. Weight, 82 lbs.

We have tools for every purpose needed by Sheet Metal Contractors.

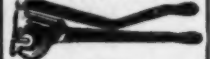
Ask your Jobber

No. 1 PUNCH



Length—34 inches. Capacity—1/4-inch hole through 1/4-inch iron. Punches and dies in sizes from 1/4 to 9-16 by 64ths.

No. 2 PUNCH



Length—23 inches. Capacity—5-16-inch hole through 3/4-inch iron. Punches and dies in sizes 3-32" to 1/2-inch by 64ths.

CHANNEL IRON PUNCH



Companion to No. 2 Punch. Every part of the two punches interchangeable, including punches and dies. Capacity—1/4-inch hole through 1/4-inch iron.

W.A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.

How to make
More Profit
with insulation
service



You'll make each job pay extra profit when you add the installation of KIMSUL* to your present service. For *many-layer* KIMSUL is a prefabricated blanket insulation—clean, non-irritating to workmen's skin—designed to let you do a perfect job in a minimum of time *without* specially trained labor or expensive machinery.

And to simplify your operation even more, here is a tried and proven working tool—a practical file of correct application methods that make KIMSUL installation faster, easier



and far more profitable. This KIMSUL Application Data File has been developed for you by insulation engineers and proved in practice by thousands of contractors on both new and existing construction. It's yours, now, for the asking. Mail the coupon today, attached to your letterhead or business card.

We are producing all the KIMSUL Insulation we possibly can, but, due to the great demand, distributors may have some difficulty in supplying KIMSUL dealers as promptly as usual.



*KIMSUL (trademark) means Kimberly-Clark Insulation

Kimberly-Clark Corporation
KIMSUL Division
Neenah, Wisconsin

AA1146

Please send me at once FREE Application Data File and full information on *many-layer* KIMSUL Insulation.

Name _____
Firm _____
Address _____
City, Zone, State _____



Do the Complete Job of Providing *Healthful Comfort*

No furnace installation is really complete unless it meets your customers' demands for true healthful comfort. When you install Thermo-Drip Humidifiers on furnace jobs whether old or new, you make them tops in efficiency because Thermo-Drip Humidifiers moisten the air as it is heated in direct proportion to temperature. Thermo-Drip Humidifiers provide healthful comfort for sure! Manufactured of the finest materials, designed and engineered for simple installation, Thermo-Drip Humidifiers make any furnace completely efficient for correctly balanced humidification. Write us today for details.

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Automatic HUMIDIFIER CO.
CEDAR FALLS IOWA

FOR EVERY TYPE OR MAKE OF WARM AIR FURNACE

Book Reviews

"Fuels and Fuel Burners," by Kalman Steiner, 385 p., \$4.50 per copy, published by McGraw-Hill Book Co., 330 W. 42nd St., New York 18, N. Y.

Written by a noted fuel engineer and author this book has as its aim the presentation of a comprehensive treatment of fuels and their utilization from the viewpoint of domestic and commercial heating installations. Written in a practical manner and in textbook style the book attempts to fill the everyday needs of not only fuel and fuel burner dealers and salesmen but also installation and service mechanics. In view of the prevalence of the use of wood and wood waste as fuel in some parts of the country there is one chapter devoted to wood fuels. (Written by R. H. P. Miller, Engineer, U. S. Forest Service.)

Putting the major emphasis on coal as a fuel since the author feels that the other fuels have adequate bibliographies available, the book ranges from the formation of fuels to the elements of combustion and offers a discussion of the various types of fuels and the means by which they are put to use.

"The Service of Selling," by Kenneth Lawyer, 3 vols., \$4.00, published by The Cleveland Heater Co., 2310 Superior Ave., Cleveland 14.

Taking the premise that every salesman is always alert to methods of improving himself and the selling job that he does, Mr. Lawyer, a professor of marketing at Western Reserve University, has written these books to make the home appliance salesman more adept at his occupation.

The first volume delves into a definition of salesmanship and the profession that it has become. It analyzes the way in

(To Page 114)

GAIN



CUSTOMER CONFIDENCE

By providing efficient, economical fuel-saving service with a Grand Rapids Furnace Cleaner, satisfied customers will place confidence in you and your work. Designed by expert engineers with practical heating experience, the Cleaner will successfully clean all types of heating systems . . . effectively. Merchandise through your service department . . . sell new equipment and repairs . . . obtain a daily cash income from cleaning jobs . . . all with the Grand Rapids Furnace Cleaner.

**GRAND RAPIDS
FURNACE CLEANER**

To obtain additional information about the Cleaner and our Proven Plan for Increased Sales, write today, so you, too, can profit!

DOYLE VACUUM CLEANER COMPANY, 227 Stevens St., S. W., Grand Rapids 7, Mich.

**YOU HAVE MANY WAITING
BUYERS For this**



**THERMOSTATIC
HEAT
REGULATOR SET**

... They're the Owners of A-P
Controlled Oil Heaters Purchased
from You since 1939!

Take your Oil Heater Customer-list out of "mothballs." Make it an active source of extra sales and profits! Offer every one of these old friends the modern luxury and oil-saving convenience of *Automatic Temperature Control* for their heaters. Show them how savings in avoid-

ing overheating can practically pay the low cost of the complete A-P Model 240-ED Heat Regulator Set. Tell them

how they'll save time, enjoy more uniform healthful room temperatures by regulating their heaters by the mere setting of a *Thermostatic Dial*

Any Vaporizing Oil Burning Heater using the A-P 240-DR or UR Constant Level Oil Control can be equipped with this **AUTOMATIC Heat Regulator Set**. This means most of the leading makes produced since 1939. It's *easy to install*, too. Complete "Sales Package" includes an Electric Conversion Top which mounts on present manual control, an attractive and accurate Wall Thermostat, a Transformer, and all necessary accessories and instructions, for simple and quick installation.

Write TODAY for prices, samples, and other advertising and selling material — to help you to **EXTRA** sales and profits this winter.

AUTOMATIC PRODUCTS COMPANY

2452 NORTH THIRTY-SECOND STREET, MILWAUKEE 10, WISCONSIN



**MODEL
240-ED
Heat Regulator
Set.**

Adds **AUTOMATIC** Temperature Control to all Oil Heaters equipped with A-P Model 240-DR or UR Manual Controls.



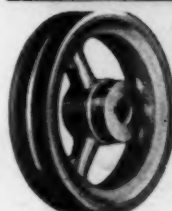
Be **SURE** your new Heater Lines are equipped with **A-P DEPENDABLE Oil Controls** — for faster sales, greater customer satisfaction.



DEPENDABLE

*Oil
Controls*

DESIGNED TO ELIMINATE SERVICING



MAUREY V-PULLEYS

**provide a L-O-N-G step toward
TROUBLE FREE Performance**

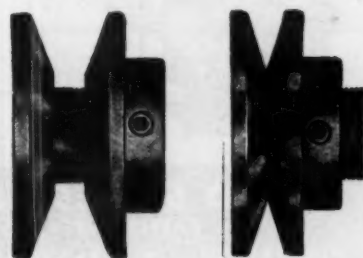
Our long experience in designing and manufacturing V-Pulleys, our complete understanding of their uses, and the finest materials—all are combined in making Maurey V-Pulleys the very best Pulley installations for Refrigeration and Air Conditioning systems as well as for Fans and Blowers.

For unfailing, continuous operation be sure to specify Maurey V-Pulleys.

MAUREY

MANUFACTURING CORP.

2915 South Wabash Avenue
CHICAGO 16, ILLINOIS



Warm Those Floors
People live on the floor...
not on the ceiling!



The function of every heating contractor is to provide his customers with ample, comfortable heat—at the level where they live. This can best be done—and no research has yet disproved it—by installing No. 40 Series U. S. Baseboard Registers which blanket floors and living portion of rooms with free-flowing clean warmth.



UNITED STATES REGISTER CO.
BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY

No. 40 Series GRAVITY BASEBOARD REGISTERS

"The Cream of the Lot" — smart, modern design — no loose screws to be lost — less installation cost. Centers easily removed or attached with Engaging Buttons. Horizontal Bar Design creates non-vision of Interior and performs a perfect Directional Flow.

☆ ☆ ☆ ☆ ☆

Book Reviews

(From Page 112)

which salesmanship gives direction to the desires of the consuming public and also discusses that public in a clinical fashion.

Going into the actual techniques of selling, the next volume is entitled "The Selling Process" and gives many worthwhile pointers on becoming a successful salesman. All the functions of the sale are dealt with from locating prospects to the compilation of records after the sale has been completed. A companion volume to the first two discussed is titled "Enthusiasm, Personality and Friendships" and dwells on personality traits that go to make up the well-rounded personality that is needed not only in selling but in every other profession and occupation, also.

"Panelaire," by H. F. Randolph, 36 p., \$1.00, published by Sheet Metal Publication Co., 45 West 45th St., New York 19, New York.

Mr. Randolph is the vice president of the International Heater Company of Utica, New York and he has authored this manual on the calculation, design and installation of 'Panelaire,' a warm air panel heating system. The distinguishing characteristic of this system is that it is installed in the ceiling of a residence and the radiant panel is then free from interference by rugs, furniture, etc., which bother the floor panel and is also free from the danger of giving an occupant of the house a 'hot foot.'

The manual goes into the basis for the Panelaire system and the reasons that it uses the ceiling as its panel and also offers a series of tables for design of an installation, ranging from heat loss factors to CFM capacities of ductwork.

KEEP YOUR EYE ON *Brundage* BLOWER ASSEMBLIES

Mr. Manufacturer and let *Brundage* engineers — experts in design and craftsmanship — eliminate your labor, time, and production worries.

Built in a plant geared to mass production, *Brundage* blower assemblies are the product of years of experience in the field of controlled air circulation.



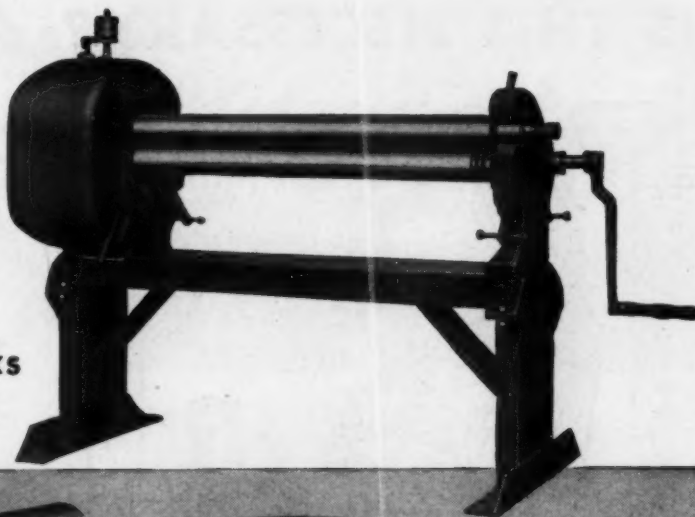
THE
Brundage
COMPANY

Blower Specialists
Since 1913
EASTMAN ST.
MICHIGAN

● Sheet metal men make a great many things, including money, with Niagara Slip Roll Forming Machines.

Niagara design makes them easy to operate because the end of upper roll swings forward so that formed cylinders can be withdrawn without distortion. Upper roll opens horizontally, eliminating lifting of roll or work. Trigger release speeds up unlocking, opening and closing upper roll.

Made in various sizes and capacities,—hand and power operated.



**NIAGARA MACHINE AND TOOL WORKS
BUFFALO 11, N. Y.**

District Offices: New York, Cleveland, Detroit

**Typical
Examples
of the
Work Done on
NIAGARA
SLIP ROLL
FORMERS**



Eliminate Cross-Seaming
Reduce Cost of Soldering
Save Installation Time
WITH Follansbee
SEAMLESS TERNE ROLL ROOFING

CERTAINLY you can increase roofing profits with Follansbee Seamless Terne Roll Roofing. The 50-foot rolls have uniformly straight edges, require no trimming, and can be cut to required length right on the job.

Certainly you want to take advantage of all these features in every roofing job. If the Distributor can't fill your orders today,—won't you ask again for Follansbee Seamless Terne Roll Roofing?

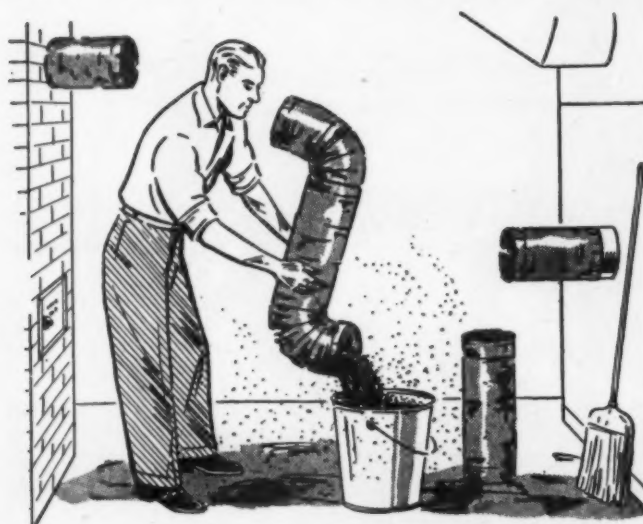
CARRIED IN STOCK
by Leading Distributors

FOLLANSBEE STEEL CORPORATION
GENERAL OFFICES • PITTSBURGH 30, PA.



Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee. Sales Agents—Chicago, Indianapolis, St. Louis, Kansas City, Nashville, Houston, Los Angeles, San Francisco, Seattle; Toronto and Montreal, Canada. Plants—Follansbee, W. Va. and Toronto, O. Follansbee Metal Warehouses—Pittsburgh, Pa., Rochester, N.Y. & Fairfield, Conn.
**COLD ROLLED STRIP • POLISHED BLUE SHEETS • CLAD METALS
ELECTRICAL SHEETS AND STRIP • SEAMLESS TERNE ROLL ROOFING**

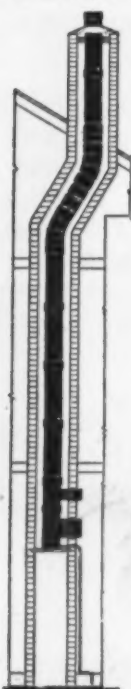
IS THIS NECESSARY?



VITROLINER BREECHING PIPE

ELIMINATES THE EXPENSE AND BOTHER OF FREQUENT REPLACEMENT

VITROLINER is a new breeching pipe for connecting heating plant to chimney. VITROLINER BREECHING PIPE will give many years of trouble-free service. A complete line of fittings makes any hookup possible and can be easily and quickly installed. VITROLINER eliminates the fire hazard of corroded pipe. VITROLINER is made of heavy gauge steel completely coated inside and outside with porcelain to prevent corrosion. VITROLINER'S porcelain finish is attractive and adds to the beauty of any room.



SPECIAL FEATURES: The Telescope section is adjustable in length and is used to fill in any odd length now accommodated by standard lengths. The Vitroliner damper section has a cleanout hole covered with a sliding sleeve.

VITROLINER CHIMNEY LINER

VITROLINER is an acid resisting chimney lining which can be installed in existing chimneys, easily and quickly. VITROLINER prevents chimney deterioration caused by acids in the flue gases. VITROLINER will catch the acid condensate and drain it away with no harm to the brickwork.

VITROLINER has been used for the past 16 years and is proven through a long field record.

VITROLINER chimney lining is heavy gauge steel, double coated inside and outside with acid resisting porcelain fused into the steel at 1575° F.

VITROLINER will correct DEFECTIVE LINING, SMOKE BACK, LEAKY BRICK JOINTS, and POOR DRAFT.

Write for further details and circular.

CONDENSATION ENGINEERING CORPORATION

122 So. Michigan Ave., Chicago 3, Ill.

With the Manufacturers

A series of supervisory changes including promotions of field and home office personnel of the Minneapolis-Honeywell Regulator Company have been announced by C. B. Sweatt, executive vice-president.

James S. Locke, who has been Chicago regional sales manager of the company's Air Conditioning Controls Division, has been named sales manager of the division and will transfer his headquarters to Minneapolis.

George D. Guler, who has been sales manager of the Air Conditioning Controls Division, has been transferred to Atlanta, where he will serve as Regional Manager in that territory. He succeeds **Albert H. Koch**, who has been made Philadelphia Branch Manager.



Locke

Guler

Koch

Carley

Succeeding Locke in Chicago will be **J. F. Cummiskey**, while **L. C. Johnson** has been promoted to Branch Manager in Milwaukee, replacing Harold Pride, who has resigned to accept a position with a Honeywell distributor.

In Minneapolis, **T. S. Carley** has been promoted to sales manager of the Wholesale Division and, in addition, will continue as sales manager of Honeywell's Stoker Controls Division.



BARTH

MODERN METAL WORKING EQUIPMENT

FOOT SQUARING SHEAR NO. 33

A real shear in every way for cutting 18 gauge material. Full 36" cut. Complete with front, back, side and bevel gauges.

Ask Your Dealer

THE BARTH MANUFACTURING CO.
MILDALE, CONN.

Either Way You Save Time

with this

Versatile Tool!



Use It as a PORTABLE DRILL



The Black & Decker $\frac{5}{16}$ " Heavy-Duty Drill is full-powered, built for continuous use. Drives twist drills up to $\frac{5}{16}$ " in piping, steel plates, ducts, vents, frames, braces and other metal parts. Drives wood augers up to $\frac{5}{8}$ " in hardwood for running pipe through flooring and walls, installing heating and air conditioning units. Drives B & D Hole Saws up to $1\frac{1}{2}$ " diameter for cutting clean, round holes in any material a hacksaw will cut.

Use It as a DRILL PRESS

Mounted quickly in a Black & Decker No. 20 Drill Stand, this Drill makes a powerful drill press. Plenty of leverage to put on the pressure. A slow, smooth feed for more precise work. You can use the same Drill for both portable and stationary work!

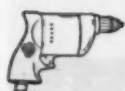


For full information on Drills and other Electric Tools for heating, piping and air conditioning work, see your nearby Black & Decker Distributor. For our complete catalog, write to: The Black & Decker Mfg. Co., 682 Pennsylvania Ave., Towson 4, Maryland.

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS



ELECTRIC DRILLS



ELECTRIC SHEARS



BENCH GRINDERS



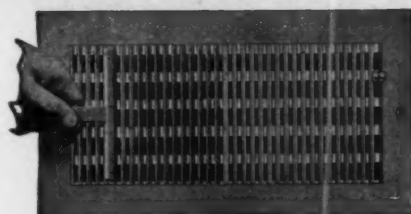
WIRE BRUSHES

Independent

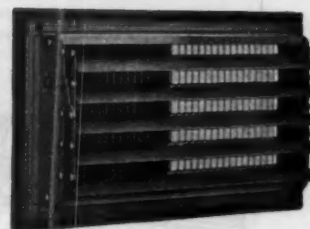
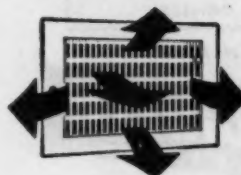
WROUGHT STEEL REGISTERS

PROVIDE

4 WAY ADJUSTABLE AIR FLOW



Design No. 238



Right . . . left . . . up . . . down . . . air flow at any angle desired, in addition to straight outward . . . plus the durable construction which has distinguished Independent products for more than 46 years . . .

These are the reasons for the popularity of this No. 238 Independent Wall Register. Vertical grille bars are manufactured at an angle of 30 degrees, one-half to the right and one-half to the left. They may be bent to direct air flow at any other right or left angle or straight outward. Horizontal multiple valves located at the back of register can be set to deflect air flow up, down, or straight outward. Available in standard sizes 8"x6" to 30"x8".

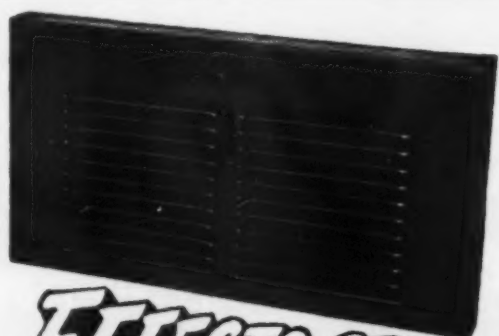


Send for Catalog 41-AC

Always Leading—Always Progressing

THE INDEPENDENT REGISTER CO.

3747 E. 93rd STREET • CLEVELAND, OHIO



EFFECTO-GRILLE

**FORCED AIR
REGISTERS and GRILLES**
Priced with the Lowest

Prewar quality . . . Adjustable Fins . . . Positive shutter operation . . . Reasonably prompt shipments.

WE ALSO MANUFACTURE A
COMPLETE LINE OF
GRAVITY
REGISTERS AND GRILLES

Prompt attention to all inquiries

EFFECTO-GRILLE

COMPANY
9930 FREELAND
DETROIT 27, MICH.

With the Manufacturers



Friedler Jelliffe Ribble Bomar

J. J. Friedler, Jr., Southern District manager of the Ilg Electric Ventilating Company, has been elected to the Board of Directors, according to an announcement by J. M. Frank, president.

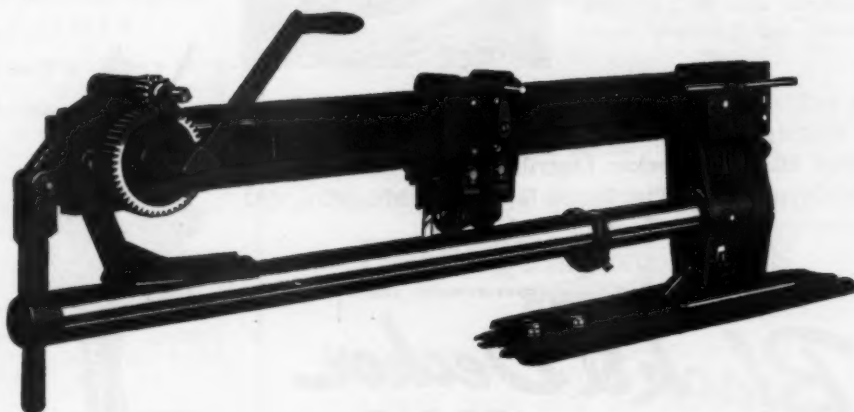
At the same time announcements of changes in the Ilg sales organization were made by P. D. Briggs, vice president and general sales manager. G. C. Jelliffe, has been appointed as direct assistant to Briggs in the New York office. Keith P. Ribble has been placed in charge of the Houston office and the Phoenix office is now being operated by E. B. Bomar, who has been working in that area for some years.

Carl H. Runge, for many years a plumbing and heating sales representative in several of the midwestern states, has moved to San Diego, California, where he has joined Ed Shafer, plumbing, heating and air-conditioning contractor. Runge's position with Shafer is in general sales engineering.

Shafer is president of the San Diego Plumbing Association, vice president of the California State Plumbers' Association and a member of the Heating, Piping, and Air-conditioning Contractors' National Association, where he serves as chairman of the Western Membership Committee.

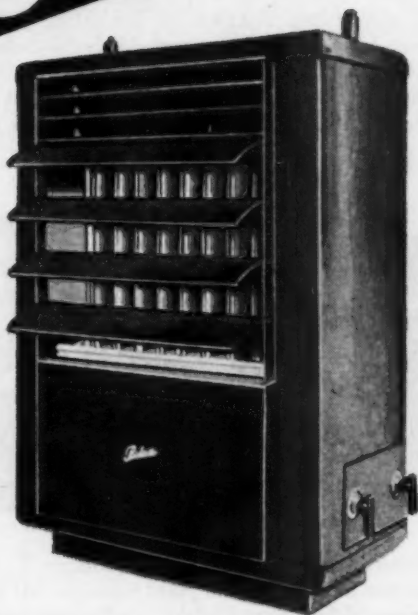
IN THE SHEET METAL TRADE IT'S BEEN PEXTO . . . SINCE 1785

PEXTO Sheet Metal Fabricating Machinery and Tools have signified accuracy, dependability and strength since the days when both the country and the industry were new. Skilled Sheet Metal Workers know that it pays to get PEXTO equipment for faster and better production.



THE PECK, STOW & WILCOX COMPANY - Since 1785 - SOUTHINGTON, CONNECTICUT, U. S. A.

Palmaire



IF BOTTLE NECKS WERE SALABLE . . .

We'd Be Rich

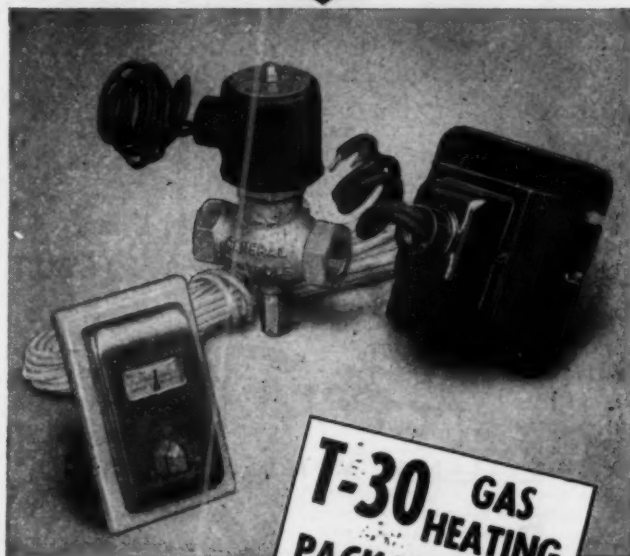
Instead, we're trying to make and sell the suspended unit heater we've pictured above. It's a good heater (The American Gas Association approved it). It leaves floor space clear, and it's fully automatic. It's good looking, too. Has a case finished in brown crackle enamel. And it's approved for Butane or natural gas.

Wish we had a lot to sell, but "Due to material . . . (you know)" we can produce only a few in the 100,000 BTU size.

Write to-day for
our catalog anyway

Palmer
MFG. CORP.
Phoenix, Arizona

Economical THERMOSTAT SETS



For

NATURAL and MANUFACTURED GAS

Finely engineered, field proved packaged sets for compact inventory and convenient installation. Ideally adaptable to gas-fired boilers, floor furnaces, conversion burners and warm air furnaces.

Set includes type K-3B two-wire gas valve, T-70 Metrotherm, transformer and 30 feet of cable.

ADAPTABLE TO L. P. GASES

100% shut-off is assured by the additional installation of an MR-2 electro magnetic thermostatic valve with 26-R Series pilot burner.

Write for Catalog 52B and Manual FI-101.

GENERAL
501 ALLEN AVENUE



CONTROLS
GLENDALE 1, CALIF.

FACTORY BRANCHES: PHILADELPHIA • ATLANTA • BOSTON • CHICAGO • DALLAS
KANSAS CITY • NEW YORK • DENVER • DETROIT • CLEVELAND • PITTSBURGH
HOUSTON • SEATTLE • SAN FRANCISCO • DISTRIBUTORS IN PRINCIPAL CITIES
14-2

**I DON'T WANT
GREASY CEILINGS
IN MY
NEW HOME**



**BROTHER,
SHE WANTS**

Blo-Fan

CEILING VENTILATORS I

BLO-FAN Spot Ventilators capture and banish kitchen smoke, greasy vapors and odors right now—as they rise. No chance to spread. The combination fan and blower principle—the ceiling installation—combine to make Blo-Fans twice as effective as equal size wall fans across the room from the kitchen range.



Install Blo-Fans in kitchens, dens, bathrooms, laundries — wherever walls and furnishings are to be kept clean — air to be maintained cool and fresh, free from odors.

Distributed by Franchised Electrical and Ventilating Wholesalers

PRYNE & CO., INC.

LOS ANGELES 54, CALIFORNIA

BRANCHES: NEW YORK • CHICAGO • HOUSTON • SAN FRANCISCO

With the Manufacturers

Frederick A. Purdy has been appointed manager of the new Los Angeles plant of Joseph T. Ryerson and Son, Inc., warehouse steel distributors. Warehouse operations at this new plant, located in the Central Manufacturing District, are scheduled to begin soon.

Mr. Purdy joined Ryerson in 1931, two years after his graduation from the University of Michigan School of Engineering. Serving first as an engineer at the Buffalo plant of the company, he later represented the firm in New York state, heading the Rochester District Sales Office for a period of four years.



Left
F. A. PURDY



Right
T. L. KISHBAUGH

Associated with Mr. Purdy is Theodore L. Kishbaugh who has been named assistant plant manager. Mr. Kishbaugh is an alumnus of Lafayette College, and a former executive of the Earle M. Jorgensen Co. of Los Angeles.



FURNACE PIPE and FITTINGS

DUCTS



**SMOKE
PIPE**



**FURNACE
PIPE**



FITTINGS

See for yourself how MADE-RITE's "one-stop" source of supply helps you to save money and better installations. Precision manufacturing of Furnace Pipe, Duct Work, Smoke Pipe, and Fittings is the big reason for our established reputation. We'll help you select the right pipe or fitting for the job . . . and can, in most cases, supply ALL your needs with parts that will FIT the first time.

The address is below and all you have to do for more information on the precision manufactured "one-stop" source of supply for fittings, etc., is just drop us a postcard. Please do it now.

"Made-Rite"

FURNACE PIPE & FITTING CO.

10th and MONROE ST., NEWPORT, KY.



"G" series Cast Iron Furnace. All parts assembled and prefitted before shipping. Extra large one-piece radiator. Ten-year guarantee, grates included.

PREMIER Is Increasing Production... Without Skimping Quality

Today all markets are being flooded with shodily made equipment, produced on the theory that quantity is more important than quality, since the public will "buy anything."

Although we at PREMIER realize the need for maximum production, we are equally interested in building *soundly*—for the sake of our own future and that of our good dealers.

We believe that tomorrow's success will depend upon how today's furnaces perform, and we're therefore building into today's furnaces that same extra quality that has always typified PREMIER products.

And we're producing these quality furnaces in constantly increasing volume.

PREMIER FURNACE CO.
Dowagiac, Michigan

PREMIER

The Year 'Round Line



"SL" series Steel Furnace. Made of heavy steel plate with all seams riveted and welded permanently leak-proof. Fire brick lined. Roller bearing grates.

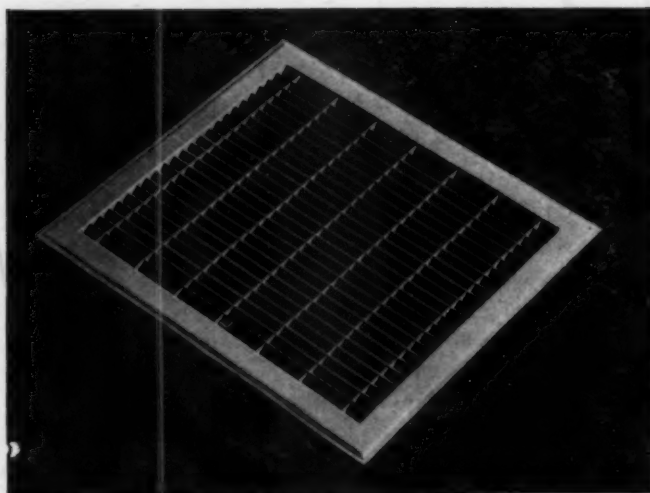


Fig. DK—DuraBilt Register

DURABILT

Floor Registers & Intakes

Remember—when selecting floor registers and cold air faces—that NO design, no matter how enthusiastically advertised, gives you more than DuraBilt. These registers and intakes are a masterpiece of careful assembly, with sturdy

flat steel, rolled-edge bars, mortised and interlocked at each cross joint. All units are pressure-forced together on the press, and tightly locked and tenoned into welded and reinforced frame, the most rigid and stoutest construction possible. Even with the narrow mesh, which rules out chair legs and extra small heels, and helps conceal register box, open area is still about 81%. Equipped, like all Auer registers, with exclusive patented spring tension deflector adjustment.

Based on the simplest and most approved engineering principle ever devised for this type of register, DuraBilt assures structural strength far exceeding normal demands. It will take the weight and take the knocks and stand up for many years of extra service.

Write for Auer Register Book, showing all models for air conditioning and warm air. Special Grille Catalog also sent on request.

AUER

REGISTERS & GRILLES

For Air Conditioning *and* Gravity

THE AUER REGISTER CO.

3608 Payne Ave., Cleveland 14, O.

DSC—DuraBilt Cold Air Face



✓ Check with METALBESTOS for BETTER Venting

Maybe we should say PERFECT venting, because that's what Metalbestos gives you on any gas appliance venting job. Its patented construction insulates the hot gases against outer air and conveys them to the top of the run without allowing them to condense within the pipe. This elimination of inside condensation removes any chance of a floating flame at the burner due to lack of draft, prevents damage to walls, corrosion, and makes makeshift "drainage systems" unnecessary.

Investigate the possibilities of making good jobs better by installing Metalbestos . . . check with us today. We'll be glad to supply you with more information . . . just send a postcard.



WILLIAMS WALLACE CO.

160 Hooper Street
San Francisco 7, Calif.

With the Manufacturers

Julius K. Luthe, President of the Perfex Corporation, of Milwaukee, prominent manufacturers of automatic temperature controls and industrial engine radiators, announces the election of Carroll E. ("Borie") Lewis as Executive Vice-President responsible for all the general operations of the company. The move was made due to the rapid expansion of the corporation's business in both the controls and radiator divisions, Mr. Luthe said. In his new position, Lewis will take over many of the duties formerly handled by the president.

The Rybolt Heating Company was established in May, 1910, at 315 East Fifth Street, Cincinnati, Ohio. In June, 1923, the Company moved to its present location at 815 Broadway. After occupying this building for twenty-three years, the Company finally purchased it.

In addition to selling and installing coal, oil and gas furnaces manufactured by The Rybolt Heater Company, Ashland, Ohio, the Company sells stokers, gas burners, and a complete line of other warm-air heating equipment. The Company has its own sheet metal shop and makes a complete line of warm-air furnace pipe and fittings.

C. E. Rybolt is president of the corporation, and C. E. Rybolt, Jr., is vice-president.

Detroit Lubricator Company announces with deepest sorrow the death of Walter S. Landon, on August 21st. At the time of his death, Mr. Landon held the position of Chief Engineer, Oil Burner Controls Division, and had been with the Company 23 years. He was recognized by the Industry as an outstanding authority on oil burner control design.

DEALERS—here's a FLOOR FURNACE you can sell and forget

The original oil burning floor furnace, Kresky is the only one with forced air circulation bearing the Underwriters' label. Four sizes . . . easily installed . . . takes as little as 30" clearance. ★ Altho unprecedented demands necessarily limit current shipments to old customers, Kresky invites negotiations from live dealers for territories still open.

KRESKY MANUFACTURING COMPANY
Pioneers in Oil Burning Equipment Since 1910
PETALUMA, CALIFORNIA

HEATING • COOKING • HOT WATER • INDUSTRIAL



Listed by
Underwriters' Laboratories, Inc.
To Burn No. 3 Oil
(Diesel) or lighter



**Oil
BURNERS**

NEW

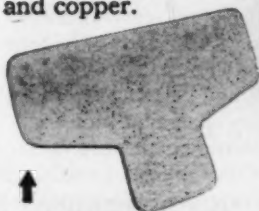
SKUTTLE

Automatic Humidifier
SERIES 500

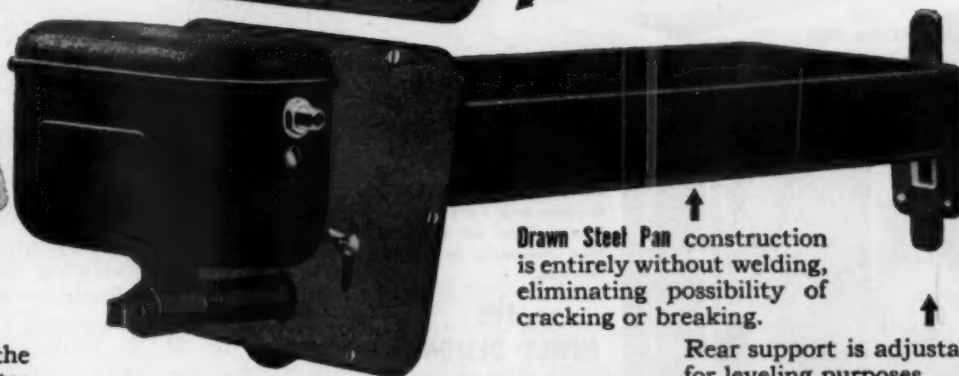
Large Inspection Door and frame → may be mounted at any location on the furnace bonnet.

Adjustable Collar will fit either sloping or vertical bonnets.

Water Tank and valve assembly are constructed of pure brass and copper.



For Greater Humidity, use the No. 590 Vapoglas plates with the series 500 Humidifier.



Drawn Steel Pan construction is entirely without welding, eliminating possibility of cracking or breaking.

Rear support is adjustable for leveling purposes.

Length of pan sizes are 12", 16", 20", 24", and 28".

Skuttle Mfg. Co.

517 E. LARNED

DETROIT 26, MICH.

TRIANGLE SHOCK ABSORBING PILLOW BLOCK

Designed by Triangle engineers for fans, blowers and other devices requiring silent operation, perfect alignment and self-lubrication.



Preloaded oil-proof cushion built into the bearing. Ball-and-socket design. Write for samples and complete information.

TRIANGLE MANUFACTURING CO.

392 DIVISION STREET

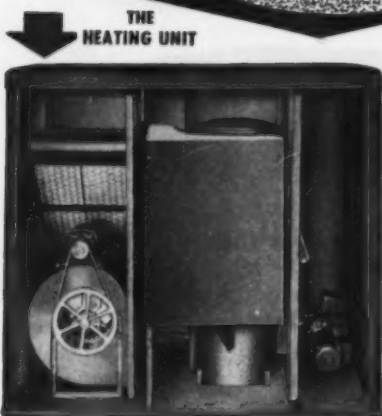
OSHKOSH, WISCONSIN

FRONT RANK

OIL BURNING FURNACES

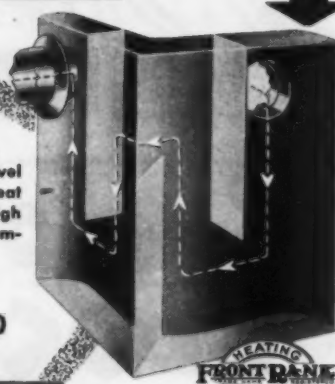
Combine

**AUTOMATIC OIL HEAT
WITH WINTER AIR
CONDITIONING**



It is the climax of years of careful tests for greater efficiency. Comprises round steel drum, specially designed Radiator. Blower and Filters and Power Plant all assembled compactly in metal Housing.

THE NEWLY DESIGNED RADIATOR



Of an entirely new design as shown. Steel welded throughout with a triple baffling arrangement. Long flue travel affords greatest possible heat absorption. Tests show high efficiency and low stack temperature.

THE STREAMLINED CABINET



Finish is green, baked-on enamel. Neat and compact requiring a minimum of floor space. Removable front panel exposes the entire oil burner assembly for service. Side panel gives access to filters, motor, etc., for servicing, cleaning, oiling.

WITH FRONT RANK

- - you're ALWAYS out FRONT

We recommend this line of Oil Burning Units for greater heating efficiency—for greater prestige and profits. It's the line to sell.

WRITE for COMPLETE DETAILS

AVAILABLE SOON

FRONT RANK FURNACE CO.
DIVISION OF LIBERTY FOUNDRY CO.
2500 OHIO AVE., ST. LOUIS 4, MO.

With the Manufacturers

Third Annual Meeting of the Indoor Climate Institute, non-product, impartial service organization of the heating industry, was held in Detroit, September 12, 1946. The following Officers and Directors were elected for the ensuing year: President, Mr. T. A. Crawford, General Manager, Timken Silent Automatic Division, The Timken-Detroit Axle Company, Detroit, Michigan; Vice President, Mr. J. M. McClintock, Manager, Freeman Stoker Division, Illinois Iron & Bolt Company, Chicago, Illinois; Secretary, Mr. R. E. Moore, Vice President, Bell & Gossett Company, Morton Grove, Illinois; Treasurer, Mr. E. N. McDonnell, President, McDonnell & Miller, Inc., Chicago, Illinois. In addition to the Officers elected, who are also Directors, the following Directors were elected: Mr. A. T. Atwill, President, Quaker Manufacturing Company, Chicago, Illinois; Mr. Allen Butler, Vice President, Perfex Corporation, Milwaukee, Wisconsin; Mr. Bruce T. Cunningham, Research Products Corporation, Madison, Wisconsin; Mr. J. J. Donovan, Assistant General Sales Manager, Chrysler Corporation, Airtemp Division; Mr. L. N. Hunter, Vice President in charge of Research, The National Radiator Company, Johnstown, Pennsylvania; Mr. C. D. Lyford, Vice President—Gas Controls Division, Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota; Mr. W. A. Matheson, Vice President, Williams Oil-O-Matic Heating Division, Eureka Williams Corporation, Bloomington, Illinois; Mr. Joseph R. Murphy, Vice President, Taco Heaters, Inc., New York City, N. Y.; Mr. C. A. Olsen, President, The C. A. Olsen Manufacturing Company, Elyria, Ohio; Mr. Jack Searls, Sales Manager, White-Rodgers Electric Company, St. Louis, Missouri.

SCHWAB CONVERSION BURNERS

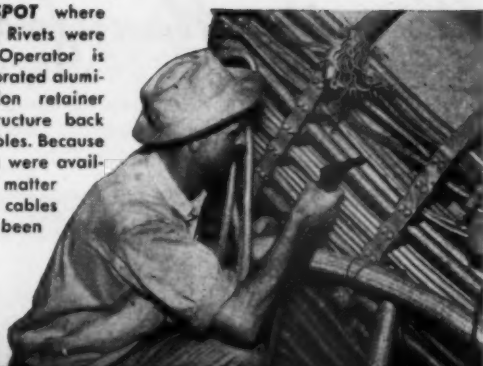


Provide LUMINOUS FLAME HEATING

THE Schwab Conversion Burner will convert practically all the energy present in city gas to usable heat. This is done with such efficiency that its operating economy is truly amazing and is due to luminous flame heating which closely resembles the flame for which furnaces are built. The radiant heat of the luminous flame is accomplished by a precise and continuous mixture of fuel and air, which achieves a high degree of heat transmission through the walls of the furnace. This is but one of the many saleable features of the Schwab Conversion Burner to help put extra profits in your pocket. The heating season is here now so we suggest you investigate at once. We'll be glad to send additional information.

THE Schwab Safe Company
LAFAYETTE, INDIANA
81 years of continuous Manufacturing Experience

A TIGHT SPOT where Cherry Blind Rivets were invaluable. Operator is riveting perforated aluminum insulation retainer sheets to structure back of electric cables. Because Cherry Rivets were available it didn't matter that electric cables had already been installed.



Here's How...

A CONTROLLED PULL

...irons out fastening kinks

A CONTROLLED PULL instead of a pound. There's no hammering or bucking because Cherry Blind Rivets are installed with a controlled pull from one side of the work only.

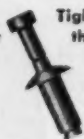
A SIMPLE ONE-HAND OPERATION vs. a tough two-man job. Installing a Cherry Blind Rivet is a fast, one-hand operation requiring only three simple steps: (1) inserting rivet in hole; (2) engaging the rivet; (3) actuating the gun.

SPECIAL CHARACTERISTICS establish Cherry superiority over all other blind fasteners: (a) Greater shank expansion; (b) Greater allowable variance in material thickness for a given rivet-length. These factors mean uniformly tight, strong joints under actual production conditions where hole sizes and sheet thicknesses cannot always be controlled closely.

FAMILIARITY BREEDS RESPECT wherever Cherry Blind Riveting is used. This simplified, speed-up fastening technique is finding more and more friends in more and more industries by providing secure, permanent fastening . . . while cutting production costs.



High Strength, self-plugging type Cherry Blind Rivet.



Tight clinching, pull-through hollow type Cherry Blind Rivet.

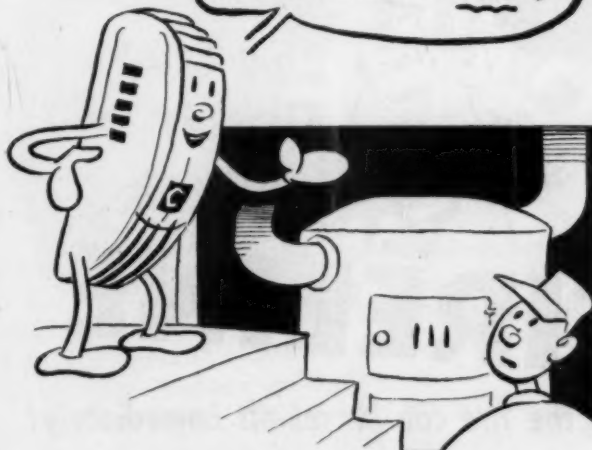


CHERRY RIVETS. THEIR MANUFACTURE & APPLICATION ARE COVERED BY U.S. PATENTS ISSUED & PENDING.

Cherry Rivet
Company
LOS ANGELES 13, CALIFORNIA

Get this Cherry D-45 Manual. Write Dept. K-200, Cherry Rivet Co., 231 Winston St., Los Angeles 13, Cal.

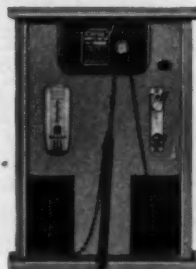
HEY! WHEN YOU DO THAT FURNACE REPAIR JOB = DON'T FORGET ME!



Many repair jobs can show you an extra profit — while you're there, sell and install a Crise Heat Control.

Look for the automatic draft control every time you're repairing a hand-fired furnace.

Every time you don't find one it's easy to sell the advantages of the fully automatic Crise Heat Control — proven for years to be sturdy, dependable, convenient. And then you've made a nice profit on the Control and on your installation time.



Keep this Demonstrator Panel on the truck — it's a working unit that demonstrates in the home just how the Crise Control operates.

Ask your jobber or write us for this complete selling program

Demonstrator Panel • Consumer Folders

Selling Card for Your Present Demonstrator

Newspaper Mats

CRISE MANUFACTURING
COMPANY
COLUMBUS 16, OHIO

NO SHIVERING DELAYS
For Days and Days
When You
Line Cracked
Firepots with
FIRELINE



...the fire can be rebuilt immediately!

Do you keep your customers shivering while you wait for hard-to-get castings? Try Fireline—it's a better way, anyway. In a few hours, you can line any cracked- burned-out firepot with Fireline. Then the fire can be rebuilt at once. Even in the middle of winter you can repair leaky furnaces. You merely pound Fireline into place with a hammer, trim it smooth. That's all there is to it. The fire bakes Fireline into a durable, one-piece lining that will stand temperatures up to 3000 deg. F.

Install this plastic, putty-like refractory through the furnace door, easily and quickly. It seals all cracks and holes in the firepot castings, stops leakage of gas, odors, soot into the building. Fireline also preserves firepots still in good condition and improves combustion efficiency. For steel furnaces, it can be moulded to any shape to repair or replace refractory tile.

With Fireline you can handle more repair jobs. You save your customers money. You make a higher profit percentage.



Ironset Asbestos Furnace Cement—
 The high-quality cement for setting up new furnaces and re-cementing old ones. Withstands higher temperatures. Will not crack, shrink, blast, or blister. Makes your work more permanent. Try it on your next job and see how Ironset builds up your reputation for permanent, gas-tight work. You can't afford to use any cement but the best—and that means Ironset.

**Two Other Products
 You Should
 Know**

Fire-Hearth Castable—
 The ideal refractory for setting stokers, forming precast combustion chambers and baffle tile. Easily installed: Just mix with water, pour into place, and trowel smooth. That's all there is to it.



FIRELINE HEATING SPECIALTIES ARE CARRIED BY LEADING JOBBERS.

Write for free descriptive literature, prices, and discount.

FIRELINE STOVE & FURNACE LINING CO.
 1818 N. Kingsbury St., (Dept. K), Chicago 14, Ill.

FIRELINE
HEATING SPECIALTIES

With the Manufacturers

E. K. Campbell Heating Company has completed its latest expansion program and has commenced production in its new plant at 1809 Manchester, Kansas City.



The move was made necessary by a demand for adequate facilities for handling heavier equipment and also by need for additional floor space. Their former plant had only 10,000 sq. ft. of floor space as opposed to the 25,000 sq. ft. in the new plant. Further, the new factory is located on a plot of land which will allow for more expansion later if it is deemed advisable.

E. K. Campbell founded the company in 1910, at which time the residential heating market was his primary concern and a 600,000 Btu installation was a large one. Now the smallest furnace Campbell makes is a 660,000 Btu unit with larger sizes up to 8,000,000 Btu's per hour.



**STOKER
 ENGINEERING**
at its best!

● Your CUSTOMER wants a stoker that provides the greatest amount of comfort and convenience with the best economy. You want to sell a stoker that will deliver these factors for the most years with the least amount of service. Customer satisfaction creates sales . . . reduced service costs increase profits.

GEHL STOKERS

In Gehl Stokers you get engineering that has met the test over a period of many years . . . stokers built to do a better job for more years, by a 79-year-old company. You get friendly, experienced cooperation based on a long-time knowledge of stoker merchandising.

Among the many features that make Gehl Stokers outstanding are: Heavy, all-cast, rust-resisting chassis. Barometric automatic control of chimney draft . . . Unit air and coal feed tube that insures even distribution of air in the fire bed . . . An auto-type transmission . . . A retort that assures efficient combustion.

Domestic and Industrial models now available.

WRITE today for literature and details of the Gehl dealer program.

Established 1867

GEHL BROS. MFG. CO.
 Dept. BL-802 West Bend, Wis.



A GEHL WINS FRIENDS WHEREVER IT GOES

"a word to the wise..."

NORTHWESTERN

The wise men in this field know Northwestern is the word in furnace repair parts. . . . They know the smart thing to do is to let US worry about the parts they need while they continue to beat the bushes for additional business.

We've been in the field for a long time, know all the ins and outs, and when you play it smart and call Northwestern FIRST you're assured of at least a fair chance of having your order filled. Of course we can't fill 'em all because the materials are just not available in many cases, but we do exhaust every source of supply before calling it quits.

So . . . and another word to the wise . . . keep after the business and let Northwestern's trained staff of worriers see what they can do about getting the parts you need. One thing we can promise for immediate delivery is literature, why not write for it now and keep your files up-to-date?

NORTHWESTERN STOVE REPAIR COMPANY

662 West Roosevelt Road, Chicago, Illinois

HITCH YOUR "47" PROFITS TO THE NORMAN* 6 STAR LINE



Here's the new, complete line of gas-fired equipment that will carry Norman dealers to a new high in '47 profits.

It's new — new designs . . . new engineering . . . new developments . . . new features. It's complete — six star items to meet all the needs of every community for quality gas-fired products. It's the Norman Profit Line to make the profit-future bright for the Norman dealer. All items will be ready in '47.

Distributor franchises are now available in many Western and Southern States.



Norman
PRODUCTS COMPANY

1150 CHESAPEAKE AVENUE COLUMBUS 8, OHIO

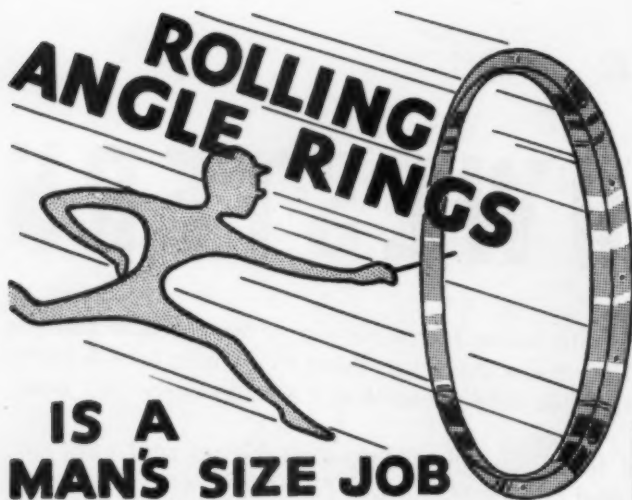
E. A. NORMAN, Jr., President
D. D. PIPER, Secretary, Treasurer



CONVERSION BURNER



*Formerly called NORGAS
Copyright 1946, NORMAN Products Co.



IS A MAN'S SIZE JOB

Let Us Roll Your Rings

Our experienced operators know all the answers to your angle ring requirements. Rolled to your specification—accurate in dimension—uniform in curvature, guaranteed to fit the job.

We consider it a man's size job to roll the type of angle ring you want for your specific job. Saves you time and effort.

Write for our price list and discounts.

National Metal Fabricators

2136 S. Sawyer Ave., Chicago 23, Ill.

Allied Appliance Open House



A large number of oil burner dealers, manufacturers and representatives of allied industries attended the "Open House" which Allied Appliance Co. of Boston, distributors of York-Heat Oil Fired Equipment and oil burner accessories, held for the industry recently to formally introduce their new modernized showrooms, executive offices and distributing facilities.

There was a total attendance of about three thousand during the five-day affair. Mitchel Landau, Manager of the Heating Division of Allied Appliance Co., was host to representatives of the heating industry on a special day set aside for presentation of York-Heat equipment and accessory lines.

Samuel H. Shipley, President, and Victor Lazo, General Manager of York-Shipley, Inc., were among the special guests during the Allied "Open House."

Samuel Dane is President and Ralph S. Cron is Vice-President and General Manager of the organization. Guy G. Smith is Promotional Director.

Cut Your Heater Costs Through Proper Heat Distribution

with AIRTHERM UNIT HEATERS

(Blower Fan Type)

Built to give continuous service in factories, garages, warehouses and other types of large area construction, the Airtherm Blower Fan Type Unit Heater will deliver heat to every corner.

Install Airtherm high velocity Unit Heaters in your plant and cut heating costs through proper heat distribution throughout your plant. Floor-mounted or suspended models.

Write for Bulletin 401

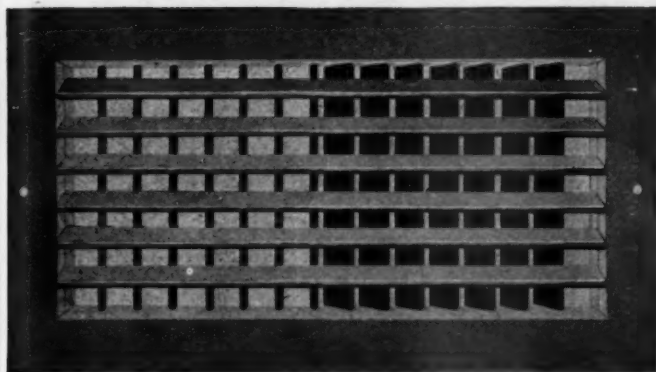
AIRTHERM
MANUFACTURING COMPANY

706 So. Spring Ave. • St. Louis 10, Mo.



Now Available

HIGH VELOCITY OUTLETS



HIGH VELOCITY OUTLET

Adjusted for Down Throw and to One Side

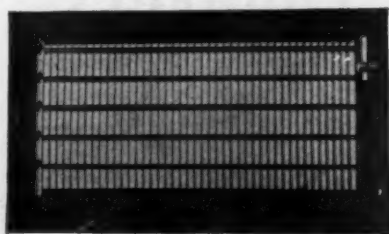
Style "DDH" illustrated above is one of eight variations of our high-velocity outlet—each bar individually adjustable with key furnished—with or without volume valves. Supplied with baked prime coat and sponge rubber gasket.

This is a heavy, attractive outlet made in all sizes, with matching fixed-bar down-deflecting return grille. Prices are competitive.

Prompt shipment of this line is available.

MANUFACTURERS OF ROOM COOLERS

We are in a position to supply variations of the High Velocity Outlet illustrated above, curved to follow the contour of your cabinet, or straight. Your inquiry is invited for prompt, helpful information.



Style 74—Register—Wall or Baseboard. This Register utilizes 1" multiple-dampers to control volume and vertical direction. Multiple dampers may be set so as to obtain up, straight, or down deflection, as well as complete shut-off. The face is the same as all others of the "70" line—permitting air reflection right or left by adjusting front blades with key furnished. Blades are 1/4" center to center, and 1/4" in depth. Complete with rubber gasket, screw holes, prime coat. This is an attractive, well-constructed register, available promptly.

For immediate quotation and literature,
Ask for Bulletin A-11.

STEWART MANUFACTURING COMPANY
INCORPORATED
BLOOMFIELD, N. J.

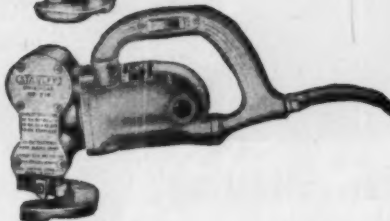
for cutting steel sheets ... to the line ... on schedule STANLEY UNISHEARS

No. 16A
Up to 16 gauge
hot rolled steel



★

No. 214
Up to 14 gauge
hot rolled steel



★

No. 144A
Up to 12 gauge
hot rolled steel



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No. 208
Up to 8 gauge
hot rolled steel



Blade action feeds-in work at speeds up to 15-20 feet a minute. Blades removable for easy sharpening. Cuts tough sheet material with hairline accuracy... straight lines, curves, angles, notches: inside or outside. Does not distort material. 100% safe. Ask your distributor for a demonstration. Write for full information. Stanley Electric Tools, New Britain, Connecticut.

STANLEY

Trade Mark

HARDWARE · HAND TOOLS · ELECTRIC TOOLS

GOERGEN-MACKWIRTH Cyclone Separators



for collecting

**DIRT,
DUST,
SHAVINGS**

● If dirt, dust, shavings or other useless or harmful particles are created in your manufacturing process, a Goergen-Mackwirth Cyclone Separator will remove and segregate them efficiently and economically. The complete range of sizes available in Cyclone Separators makes it easy to select the exact size for your requirements. Special types and sizes can be designed for individual needs.

Goergen-Mackwirth Cyclone Separators require less horsepower for the fan operation because their offset outlet and clockwise rotation within the collector body greatly reduce the resistance loss through the collector. Their design eliminates the back-pressure found in ordinary separators.

Ask to have one of our engineers survey your problem and submit recommendations. Or write telling us what you want to do and we will quote on the separator needed to do the job.

Goergen-Mackwirth
COMPANY, INC.

817 SYCAMORE STREET, BUFFALO 12, N. Y. Phone: Cleveland 6661
SPECIALISTS IN THE MOVEMENT AND CONTROL OF AIR

Penn Electric Laboratory

As part of a general program of improving efficiency and flow of production materials the Penn Electric Switch Co. of Goshen, Indiana found it necessary to consolidate and modernize their Laboratory.



Since Penn makes automatic electric controls for many types of installations the first step was to set up an electrical switchboard that would enable them to originate any needed electrical circuit and transmit it to any part of the laboratory. This made the testing processes a great deal easier from the standpoint of actual functioning. Next need was for oil burner equipment to test oil burner controls. This equipment was installed on concrete piers 24 inches above floor level in order to preserve the back muscles of the testing engineers.

The refrigeration section has means for testing controls in operation and also under service conditions. Electrical heat rise tests are also conducted. Another part of the lab has complete equipment for flow control tests, with provisions that will give a pressure of 250 lbs. per square inch.

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for Details on

HESS FURNACES

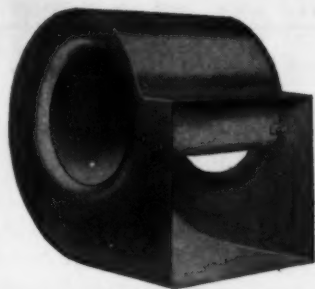
Now Available

➔ Investigate the advantages of HESS Equipment—backed by 73 years of Heating and Ventilating Experience

HESS

Established 1873

**WARMING AND
VENTILATING CO.**
1211 S. WESTERN AVE.
CHICAGO, ILLINOIS



Massachusetts

WHEELS and HOUSINGS

For Air Conditioning Product Manufacturers

HOUSINGS

For standard diameter wheels.

Single or double inlet.

Full or special width.

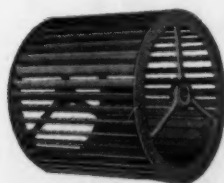
Special scroll design for restricted spaces.

WHEELS

7½" to 27" diameter.

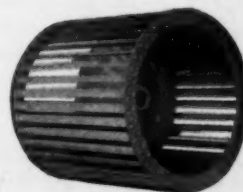
Single or double inlet.

Center plate or end spider.



TYPE "SP" WHEEL
SPIDER TYPE

TYPE "C" WHEEL
CENTER PLATE TYPE



Bulletin 103 Catalog now available giving complete description, performance data and dimensions.

MASSACHUSETTS BLOWER DIVISION

The BISHOP & BABCOCK Mfg. Co.

4901 HAMILTON AVENUE

CLEVELAND 14, OHIO

The new Riverside

PITTSBURGH LOCK MACHINE



**DELIVERS 16 TIMES MORE WORK
THAN ORDINARY METHODS**

The sheet metal man with the best equipment will enjoy worthwhile competitive advantages in the days to come. When you pick a Pittsburgh Lock Machine choose carefully to make sure the machine you buy gives you all those up-to-the-minute features that mean better performance and longer life!

With the new RIVERSIDE Pittsburgh Lock Machine, even an apprentice can make more Pittsburgh Locks in an hour than two men working all day by ordinary methods. And get better work clean, uniform, open-throated locks that speed up installation and assembly on the job.

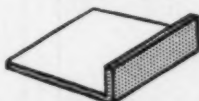
DOUBLE SEAM



DRIVE CLEAT



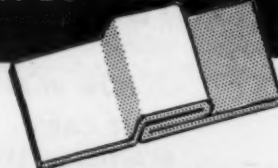
90° FLANGE



ILLUSTRATED CIRCULAR UPON REQUEST



SAMPLE FREE!



Send your name and address. Get full facts, illustrated circular, prices, and actual METAL SAMPLE of work done on the new "Riverside." You can't afford to buy ANY Pittsburgh Lock machine without this convincing evidence. Write at once!



RIVERSIDE MACHINERY CO.

111 W. 111th ST.

PHONE PULLMAN 0048 CHICAGO 28, ILL.



MAKES GOOD INSTALLATIONS BETTER!

WHEREVER gas or oil heating furnaces are installed condensation and corrosion on chimney walls and masonry becomes a destructive agent that must be eliminated for safety and economy. Right there is where you'll be able to safeguard your customer and your installation by selling the value of Heremetal Chimney liner. Explain how it prevents corrosion and condensation and thus removes the cause of unsightly and expensive deterioration to brick and mortar work . . . and how it will eventually result in a saving that will write off the original cost. You're sure of making a good job better and additional profits by installing Heremetal on all jobs of this type. Make a check of the chimneys in your neighborhood, too. You'll find additional business on existing installations. Plenty of literature available. Please write for it.

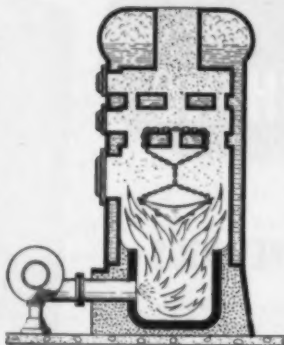
THE HEREMETAL COMPANY

1310 Aldrich Avenue North

Minneapolis 11, Minn.

STAINLESS STEEL BAFFLE

We believe this Stainless Steel Baffle to be the best Fuel Oil Saving device ever offered. Completely burns the ends of the oil, increases CO₂. Decreases stack temperatures. Essential to any efficient conversion job. Delivers heat to fire-pot walls in warm air furnaces and short flue travel round boilers. Can be installed in 15 minutes. Cone-shaped bottom smoothly diverts flame without any back-pressure and gets red-hot instantly.



U. S. and Foreign Patents applied for

NOW IN PRODUCTION

VENT CAPS - FILL BOXES
STAINLESS STEEL BAFFLES
STAINLESS STEEL CHAMBERS

-PEMCO-

Petroleum Equipment Mfg. Co.
P. O. Box 1533
NEW HAVEN, CONN.

See Your
Distributor

Satisfaction
Guaranteed

Obituaries . . .

Irving L. Jones

Irving L. Jones, president of the International Heater Company, died Nov. 2, 1946, in his home after an illness which had lasted for several months.

Born in Utica, New York, on Sept. 7, 1879, Mr. Jones was educated in the schools there, graduating from the Utica Free Academy in 1896. He began his business career with the International Heater Company as an office boy and had completed fifty years with the organization on April first of this year. Mr. Jones had been president of the company since 1931, having been head of the accounting department for twenty years prior to his last appointment.

Mr. Jones was a noted figure in the warm air heating industry and served two terms as president of the National Warm Air Heating and Air Conditioning Association. This fact in itself is not so remarkable but the consideration that he served one term and then after a few years served another term is notable. He was one of the motivating spirits behind the research work at the University of Illinois and was also one of the original group that subscribed funds for the first Research residence. In addition to his activities in the warm air field Mr. Jones was also a director of the Institute of Boiler and Radiator Manufacturers.

Tom Brown

The month of August saw the end of the career of Tom Brown, a man well-known in heating and ventilating circles not only in this city but also in Detroit and Cleveland. Mr. Brown had been incapacitated for some years and there had been hope of recovery, to a certain extent, but the illness finally conquered.

(To Page 134)



AVAILABLE FOR PROMPT DELIVERY

A newly designed Foot Power Squaring Shear embodying many new improvements not found on similar machines. Built in one size, 36" to shear 16 gauge soft steel and lighter. All steel welded construction, unbreakable, will give many years of service. All parts of ample size, strongly braced to cut up to full capacity without springing. Top knife bar is provided with bronze gibs to compensate for wear. Blades are of the highest grade tool steel, hardened and carefully ground so as to give a maximum of service before regrinding. Adjustable front and rear gauges are provided. Machine is also furnished with spring actuated hold-down.

Price—\$225.00 F. O. B. Truck or Car, Chicago
Manufactured by Economy Tool & Gauge Company.

Exclusive distributors:

ACME EQUIPMENT COMPANY

128 SO. CLINTON STREET

CHICAGO 6, ILLINOIS

ANDover 3430

HUNDREDS of NEW IDEAS



In Heating Ventilating Air Conditioning

Don't miss the Heating and Ventilating Exposition if you're connected with these fields in any way. It's the first such show since 1940. Plenty has happened since. This year's show is far and away the biggest yet!

Get the vital new ideas you *need* to progress in your field—in a short visit, under one roof! See first-hand the more than 300 exhibits of all types of heating, ventilating, air conditioning and related equipment.

7th INTERNATIONAL HEATING & VENTILATING EXPOSITION

The Air Conditioning Exposition
LAKESIDE HALL, CLEVELAND, OHIO • JANUARY 27-31, 1947
Under the auspices of the American Society of Heating & Ventilating Engineers

Management of
International Exposition Co., Grand Central Palace, N. Y. 17, N. Y.

IT'S *EASIER* TO SELL
COAL-SAVING AUTOMATIC
HEAT --- WITH THE
 **HEAT REGULATOR SET**





The DEPENDABLE 4-piece A-P Heat Regulator set—for warm air, steam or hot water coal-fired furnaces—has many proven features that help you to ready selling.

The modern streamlined A-P *Thermostat*, with its ivory-tone cover, recessed easily-read thermometer, is sensitive to 1° temperature change, operates fast and frequently for close control of room temperatures. Compact, powerful *Damper Regulator* is quiet in operation, precision built for years of trouble-free service, and has a "stoking safety" feature that furnace owners appreciate. Separate *Limit Controls* available for warm air, steam, or hot water systems, avoid dangerous and wasteful overheating for extra safety and economy. *Transformer* and complete accessory and installation kit permit quick, easy installation.

Help your furnace-user friends NOW to coal savings, and more convenient, uniform, comfortable heating this year. Write for your complete sales kit on the A-P Heat Regulator Set for coal-fired furnaces.

AUTOMATIC PRODUCTS COMPANY

2470 NORTH THIRTY-SECOND STREET • MILWAUKEE 10, WISCONSIN



DEPENDABLE Controls
FOR HEATING • AIR CONDITIONING
REFRIGERATION

Cut installation time in half
with adjustable air diffusers

Kno-Draft Adjustable Air Diffusers

... are equipped with easily regulated unit dampers for fast system balancing and an air direction adjustment for ceiling heights and individual or seasonal requirements.

Specify Kno-Draft Diffusers for better mixing of room and supply air, more uniform temperatures throughout the occupied zone and noiseless, draftless air distribution.

FREE HANDBOOK: Contains clear sketches, charts, dimension prints and instructive text that simplify the selection and installation of air diffusers. Please write Dept. J-4 for your copy, using your company letterhead.

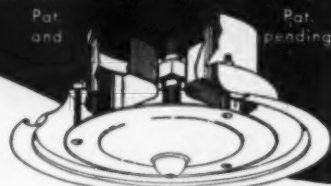
W. B. CONNOR ENGINEERING CORP.

AIR DIFFUSION AIR PURIFICATION AIR RECOVERY
114 East 32nd Street New York 16, N. Y.

IN CANADA:

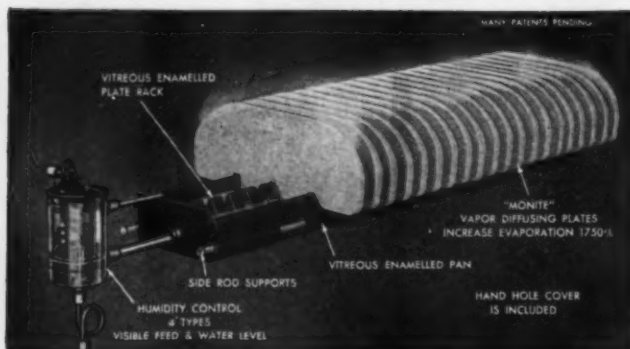
Douglas Engineering Co., Ltd.

1405 Bishop St.,
Montreal 25, P. Q.



Any desired condition at your fingertips

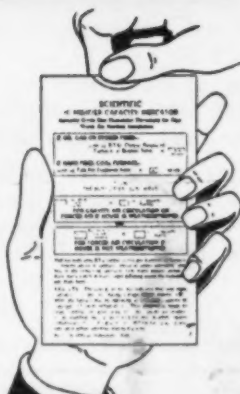
**Type K Adjustable Diffuser
with Type D Volume Damper**
(damper regulator protected by tamper-proof cap)



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Send for this FREE Monmouth Humidifier Capacity Indicator. You will find it useful as a new, quick method of figuring humidifier requirements for any job. And remember that Monmouth is the leading humidifier for any warm air job—best engineered, most efficient and dependable. Available for delivery NOW.

Bulletins and prices on request.



THE CLEVELAND HUMIDIFIER CO.

7804 Wade Park Ave.

Cleveland 3, Ohio

Obituaries . . .

(From Page 132)

Born and raised in Chicago, Mr. Brown was educated in architectural engineering, at the University of Illinois, with an interruption of his college course that found him serving overseas in World War 1, being discharged as a captain in the infantry.

While working for his first employer Mr. Brown did some of the engineering on the Field Museum and the Union Station, being among the largest heating and ventilating installations in the city of Chicago. Later he joined the firm of B. F. Reynolds and Co., engineers and contractors, for whom he eventually became Detroit district manager. His next move was to organize his own firm, Tom Brown and Associates, which he left to return to Chicago as general manager of Autovent Fan and Blower Co.

Then in the year 1940 Mr. Brown became associated with the Avery Engineering Company of Cleveland and it was shortly after this connection that he was hospitalized with the illness that proved fatal.

Murray Kice, Jr.

Murray Kice, Jr., chief engineer of American Blower Corporation, Detroit, Mich., died on September 25th at Harper Hospital after a two-year illness.

Prominent in the heating and ventilating industry as a writer of many published articles, he was active in the American Welding Society, Engineering Society of Detroit, Economic Club, American Society of Heating & Ventilating Engineers, and American Society of Mechanical Engineers.

Kice was born in Louisville, Kentucky, in 1893. He received his public schooling there, his college training at Purdue University from which he graduated in 1915 with a B.S.M.E. degree.

Immediately following graduation, Kice began his life long association with American Blower.

LINE UP NOW WITH ECON-O-COL STOKERS



... to cash-in on the huge backlog of stoker sales! You increase your profits through faster sales, make fewer service calls by selling ECON-O-COL's complete line of precision-built, highest quality stokers. And a hard-hitting promotional program backs you up every step of the way! Details of our exclusive dealer franchise, now available in several areas, await your inquiry. Write or wire us today.

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COAL BURNER



THE SHIELD
OF QUALITY

ECON-O-COL

The "Stronghearted" Stoker

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MAPLEWOOD HUSKY-LITE COMBINATION MACHINE

20 Gauge Capacity - Immediate Delivery



A HUSKY—LIGHT WEIGHT ALL-PURPOSE MACHINE, made from SPECIAL ALUMINUM ALLOY. Weight (less standard) 15 lbs. Equipped with steel cut gears. Steel rolls (2' long) are machined, hardened, ground and keyed to fit shafts.

A large interchangeable gauge (3¼" x 2½") and handles for either top or bottom shaft permits clockwise or counter-clockwise operation.

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TURNING
WIRING
SINGLE BEADING
O. G. BEAD ROLLS
EDGE STRAIGHTENING
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COMBINATION CRIMPING
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SEE US FOR—

Pittsburgh Lock Machines, Roll Forming Machines, Roller Dies, Pipe and Elbow, Beading, Turning Machines and all other Sheet Metal Working Machinery.—Your inquiries invited.

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Performance is the yardstick for measuring the efficiency of any heating plant, and those that will operate year after year with little or no attention are the ones which will return you the most profit.

You're sure of top drawer performance when you install ATH-A-NOR Furnaces and parts exclusively. Over fifty years of furnace manufacturing experience guarantee you home heating plants with performance ratings and lasting qualities to satisfy the most critical clients. Investigate now . . . write for literature.

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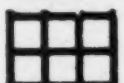
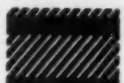
Manufacturers of Quality Heating Equipment
for Over Fifty Years.

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PERFORATED METALS

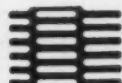
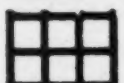
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ESSENTIAL



They are used in the processing of grain, food, chemicals, ore, coal, rubber, petroleum and many other products.

Our range of sizes is great and we aim to meet the most exacting demands.

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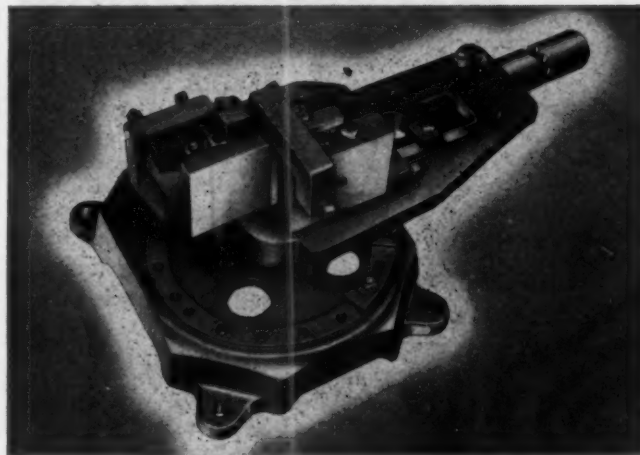


The Harrington & King PERFORATING CO.

5849 Fullerton St., Chicago 44, Ill. 114 Liberty St., New York 6, N. Y.

Save Time and Money with

JK Benders



JK NO. 4 BAR BENDER

JK Benders are offered in a complete range of styles and sizes to meet the requirements for duplicating a large variety of shapes. They are easily set up for either hot or cold bending and there is practically no limit to the scope of work they can handle. If you have a bending problem you can solve it with a dependable JK Bender.

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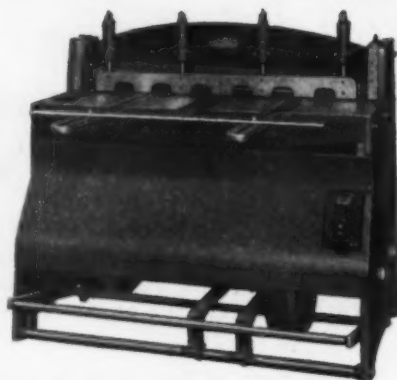
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30 YEARS EXPERIENCE

POWER SQUARE SHEARS

Sizes—36", 42", 60"
Capacity 16, 14, 12 ga.

**FAST
DEPENDABLE**



Motor Enclosed Between Housings



No. 38 THROATLESS BENCH SHEAR

Capacity— $\frac{3}{16}$ "
Blade Length—5"
Weight—41 lbs.

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The Paragon
Symbol of Top
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7-Day TIME SWITCH



CALENDAR DIAL

—Calendar dial . . . providing individual daily settings for weekly schedules with holiday and Sunday shut-off and advanced time cut-off Saturday noon. 6" clear line 7-Day calendar dial calibrated to hour and half hour markings. 14 adjustable rider type trippers, thumb screw set, standard.

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ELECTRIC
COMPANY**

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\$24.50
LIST

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Paragon *Two Rivers*
WISCONSIN
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1905

Kruckman

Washington Letter

(Continued from Page 63)

civilians under limitations of a civilian Government organism. Apparently the thought is that as a part of the Army and the Navy the administration may be invested with more highly sharp and brisk regimentation of military definition.

The Expediter Cometh

Meanwhile, if you need the steel sheets or strip, which undoubtedly may be found somewhere in the many odd nooks and corners where the War Surplus is tucked away, (especially on the Eastern seaboard) you may get a hint in regard what to do about it by following the steps of the Western furnace maker. He has employed an expeditor. But first he has filed his priority certificates in Washington. By doing this he places himself in the main channel for attention when the expeditor locates the steel. The expeditor, an alert and practical person of integrity, watches carefully all the places where steel may show up, particularly Eastern centers. By daily calls in the various offices in WAA, RFC, and other agencies which have reason to be interested or identified with steel in one way or another, or which may have influence in the disposal of steel, he manages to learn of odd lots for which he may file a claim in behalf of his employer before the steel is grabbed by someone else. The expeditor usually can keep abreast of the flow of Surplus steel, and any other available steel, wherever it may be had in any place in the country. The transaction is clean and clear business, with no shenanigans involved. Naturally it means friendly preferences as well as formal priorities. The man on the job in Washington

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Furnace Fittings and Repair Parts

Send for catalog just off the press giving complete line of furnace fittings.

Peerless can also supply you with repair parts for all makes of furnaces and boilers. Send for New Repair Parts Catalog.

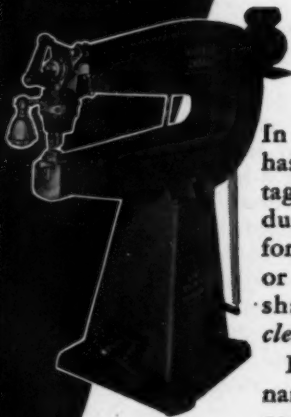
It's coming—The New
PEERLESS GAS MASTER FURNACE
Watch for Important Announcement

*Pioneers in Warm Air Heating Equipment
for Almost Half a Century*

PEERLESS FOUNDRY COMPANY
1855 Ludlow Ave. Indianapolis 7, Ind.

Libert ^{Hi-Speed} SHEAR

CIRCLE CUTTING
ATTACHMENT
Included as
STANDARD EQUIPMENT
with this Machine



MODEL 1236
36-in. throat,
12-gauge capacity.

WRITE FOR
BULLETIN

LIBERT MACHINE COMPANY
Green Bay, Wisconsin

- **SIMPLIFIES**
Maintenance
- **SPEEDS**
Production
- **SAVES**
Manpower

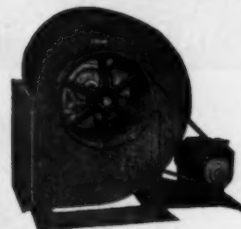
In wartime work, the *Libert* has amply proved its advantages by turning out top production—shearing flat or formed sheet metal, internal or external, plain or irregular shapes *rapidly, accurately, cleanly!*

Equally effective in maintenance work, *Libert* is cutting costs to rock bottom. Edges are smooth, need no finishing. Unskilled operators produce accurate work at once.

Sizes up to
60-in. throat, 10-gauge capacity.

YOUR BLOWER Requirements

AVAILABLE AT
Schwitzer-Cummins Company



★ **BLOWERS**
FOR EVERY PURPOSE

Double Inlet and Single Inlet

HY-DUTY Blowers, 9 3/4" to 25" • Top and Bottom Horizontal, and Top and Bottom Vertical Discharge • Top and Bottom

Motor Mounting • Dual Units also available.

★ **CENTER DISC WHEEL**—Double Inlet, Double Width • Reinforced Center Disc • Designed for Modern Air Conditioning and Heating Applications • Sizes, 4 1/2" to 50".



★ **ENGINEERING DATA**—Write for Catalogues showing complete Performance Data • Experienced Engineering Department available to help solve your Air Handling Problems;

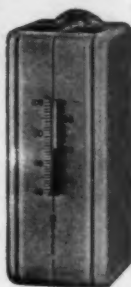
VENTILATING DIVISION
SCHWITZER-CUMMINS COMPANY
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MASTER TEMPERATURE CONTROLS



B-22 Motor

The "Master" Mark on temperature controls means greater comfort . . . longer life . . . more efficient service for your customers . . . easier sales for you.



A-23 Plain
Thermostat

For over a quarter of a Century, "White" has been a distinguished name in the heating industry. Master Temperature Controls are famous for their greater comfort, more efficient service and longer life . . . factors which insure complete satisfaction for your customers and growing sales for you.

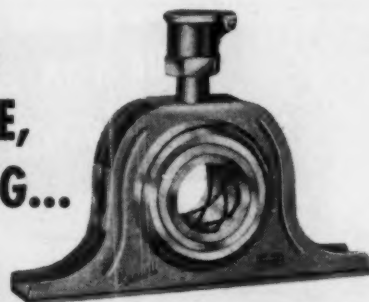


D-22 A
Regulator Switch

WHITE MANUFACTURING COMPANY
2368 University Avenue • St. Paul, Minnesota

Quiet,
DEPENDABLE,
LONG-LASTING...

Randall



PILLOW BLOCKS

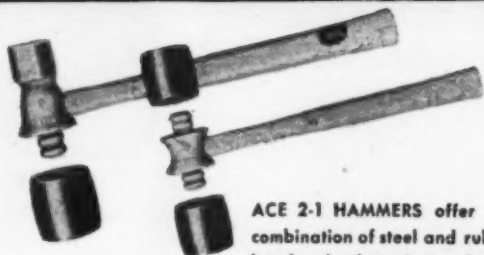
Randall One-Piece Steel Housing Pillow Blocks are quiet, dependable and long-lasting because they are designed and built right . . . the result of more than 40 years experience in bearing engineering and manufacturing.

They're self-aligning, self-lubricating, easy to install and economical.

Investigate the complete Randall line now! Write for Catalog #42.

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ACE 2-1 HAMMERS offer a combination of steel and rubber heads that give a dual use. Rubber head with correct degree of toughness is replaceable when worn. Hickory

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● ACE 2-1 HAMMERS REALLY MAKE A HIT



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THE BARNES BETTER BILT GAS FLOOR FURNACE

The BARNES BETTER BILT GAS FLOOR FURNACE is enthusiastically endorsed by many home owners and builders because of the simple, quick method of installation. It's merely a matter of cutting a hole in the floor and wall furnace-size—then presto! it goes in easily and with a minimum of fuss or fuss.

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standards for safety, economy and efficiency—and the ten year guarantee that insures your investment.



For further information on the Barnes Better Bilt Gas Floor Furnace write today

BARNES HEATING & VENTILATING CO.

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is bound to have acquaintances and friends among the personnel of the agencies; and it is logical and legitimate for those friends and acquaintances to make suggestions to the daily visitor, (whom they meet occasionally outside with friends), which suggestions cannot be transmitted in the same spirit nor as swiftly to those with whom they have only formal and distant relations by phone, or letter, or even by means of an infrequent visit. There is no doubt the Western furnace maker is now set to get his share of the sheets and strip. Incidentally, it is said that strip is more plentiful than sheet, and that you can get hot rolled steel more easily than cold.

The business of expediting has been recognized by the purchasing agents for the leading organizations in the national economy. Only the other day an expeditor for a telephone company while in Washington learned from a friend that there was some desperately needed wire in Belgium. He hopped on a plane and managed to get a share of the wire before it was all gobbled up by Europeans. Most of these expeditors whom we see dashing in and out of the Capital have commissions to go on the instant any place where they hear there may be the materials they seek. Most of them are after metal, lumber, scrap, and motors. The majority carry a fat letter of credit, or Express Money Orders, or even really huge sums in cash, which they are able to use to close the deal while their competitors may be compelled to phone for banking arrangements or for the transmission of funds. The lack of liquid cash in pocket often is the difference between getting the goods and losing them. These roving expeditors are especially active in the business of those who need scarce building materials and equipment of all kinds. These men—and sometimes women, too—can tell some extraordinary yarns. Some of them even have their own planes, with or without pilots. They represent a new drama and romance in business. The impression is that they will be permanent adjuncts to the pro-

SQUARING SHEARS THAT NEED NO POWER



● The Famco Squaring Shear is an all 'round saver. Requires small investment . . . no electric power . . . it's simple to install . . . has easy gauge settings . . . cuts up to 18 gauge mild steel with ease. Made in five sizes: 22", 30", 36", 42" and 52" cutting widths (three largest sizes have "hold-down" attachment). All models are equipped with front, back and side gauges. Write today for folder.

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Racine, Wisconsin

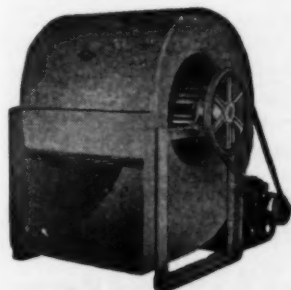
famco COST CUTTING
machines

SQUARING SHEARS • ARBOR PRESSES • FOOT PRESSES

Properaire BLOWERS

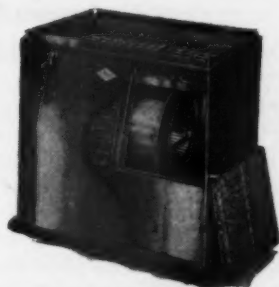
EXHAUSTERS and FANS

Easily adapted, high quality air moving equipment at attractive, reasonable cost.

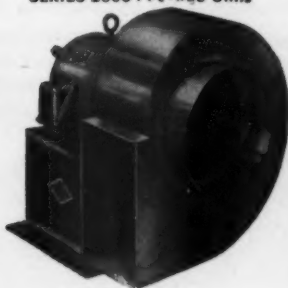


"B" ASSEMBLY Belt Drive

Built for the HOME and OFFICE,
and for STORES, FACTORIES
and INSTITUTIONS.



SERIES 2000 Package Units



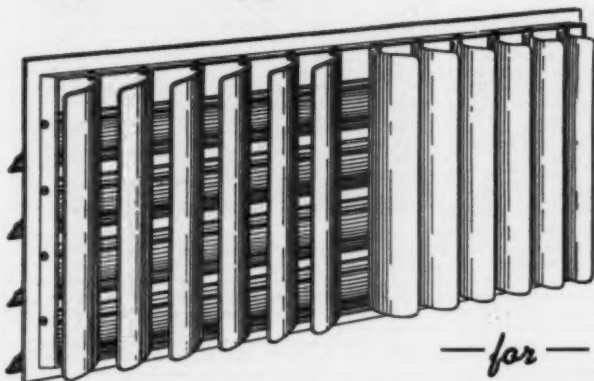
TYPE E Direct Drive

Ask Your Jobber or Write for Complete Descriptive
Information.

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— for —

PERFECT AIR DISTRIBUTION

Installations which must handle large volumes of air perfectly diffused, and requiring graceful architectural beauty, are a cinch when you specify and install A-J Diffusers. Here's a versatile outlet with high performance rating, ruggedly constructed for years of service.

Primed to prevent rust and finished in a most attractive color A-J Diffusers will enable you to meet the most rigid specifications on theater, school, factory, or institution installations where quality and appearance are of prime importance.

A full description of our entire line is available. Please write for catalog.

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PENN-AIRE FURNACES

GRAVITY, CAST IRON

Popular Price

Practical Design

Economical Operation

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BOYERTOWN, PA.

BOTH Star Performers

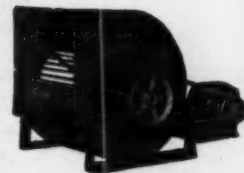


A great back excels on the gridiron because he knows such a wide variety of attack maneuvers that he easily crashes through any and all obstacles thrown in his path by the opposition.

REX BLOWERS excel in the field of heating and ventilating because they are available in such a broad range of sizes—a range that permits selection of a unit that most efficiently solves any air-moving problem.

Not five, not ten—but TWENTY-TWO delivery ratings, from 400 C.F.M. to 32,000 C.F.M. are offered by this really complete line. And design is by field-trained engineers who know how to insure user-satisfaction with units that give smooth operation and trouble-free service.

For heating and ventilating installations that consistently win and maintain harmonious customer-relations, profit-minded dealers confidently choose REX BLOWERS



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CONTROL... IF
YOUR CONTROLS ARE
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TM STANDARD Thermostatic Valve Controls

3/4" 172,000 BTU
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Operated by continuous 24-V current passing through valve magnet and continuously holding valve open. In event of electricity failure, valve immediately closes, shutting off gas in furnace.

ALSO AVAILABLE IN LIMITED QUANTITIES
STANDARD TRANSFORMERS AND THERMOSTATS

IF IT'S "STANDARD" • IT'S SPECIFICATION QUALITY

Standard REMOTE CONTROL VALVE COMPANY
SOUTH PASADENA CALIFORNIA

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REPAIR PARTS
for STOVES • FURNACES
• BOILERS •
WATER FRONTS

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STOVE & FURNACE REPAIR CO.

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DENVER 2, COLORADO

curement staffs of most organizations. This fact in itself fore-shadows the intensity of the competition for things which is seen ahead.

Bureau Sidelights

Morgan Johnston's successor in the Heating Section of CPA is Don F. Brown, who at one time was associated with the Standard Sanitary in Louisville, Kentucky, and during the war came to Washington as a civilian member of the staff of the U. S. Corps of Engineers. Later he went to R.F.C., and after V-Day for a short period was out of Government service in Philadelphia. He is genial, smooth, and eager to help any person in the industry who needs counsel or assistance. Lately he has had his hands full with the affairs of those who have had trouble in qualifying for the fourth quarter steel allocation under the terms of the amended PR 28 the "hardship" regulation. The amendment virtually junked previous filings, or those which had been incomplete or made improperly. Brown has little sympathy with those who have not made their filings as required in the past. He is rather shy of reporters.

Despite anything you read or hear, it will be wise to assume that the Wyatt housing program with controls on allocations and prohibitions and freezes will be maintained for an indefinite period. Wyatt has considerable influence in and about the White House, and has the personality to make it stick. Out in San Francisco, however, he failed signally to sell his housing program to the American Legion convention. He came, he saw, he talked, and was turned down with a thud that was heard all over the United States. The American Legionnaires not only failed to endorse his program, but they appointed a Committee composed of those who were either luke warm or opposed to his program to investigate and report.

Statement of the Ownership, Management, Circulation, Etc., Required by Acts of Congress of August 24, 1912, and March 3, 1933

Of American Artisan, published monthly at Chicago, Ill., for Oct. 1, 1946.

State of Illinois, County of Cook—ss.

Before me, a notary public in and for the state and county aforesaid, personally appeared F. P. Keeney, who, having been duly sworn according to law, deposes and says that he is the publisher of the American Artisan and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher—F. P. Keeney, Chicago, Illinois.
Editor—J. D. Wilder, Chicago, Illinois.
Managing Editor—J. D. Wilder, Chicago, Illinois.
Business Manager—Chas. E. Price, Chicago, Illinois.

2. That the owner is (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given):

Keeney Publishing Company, 6 North Michigan Avenue, Chicago 2, Illinois.

Stockholders: F. P. Keeney, Chicago, Illinois; W. J. Osborn, Fairfield, Conn.; Chas. E. Price, Chicago, Illinois; Robert A. Jack, Cleveland Heights, Ohio.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are (if there are none, so state):
None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

F. P. KEENEY, Publisher.

Sworn to and subscribed before me this 23rd day of September, 1946.

GRACE E. WAYMIRE.
(My commission expires February 10, 1950.)

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PLANING MILL EXHAUSTERS

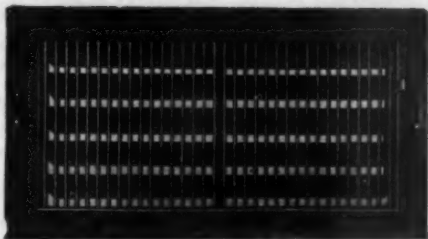
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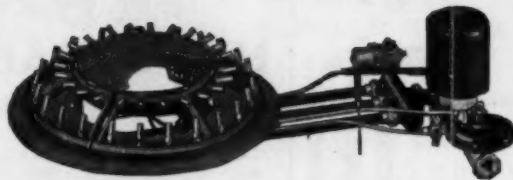
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GILTEDGE

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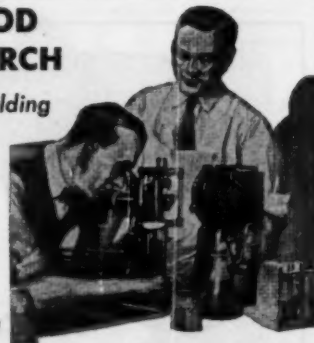
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FLUX KEPT GOOD BY RESEARCH

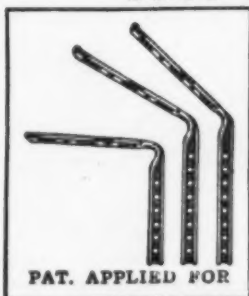
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Zideck

(Continued from Page 91)

and shapings; (c) there is no likelihood of the rubber being damaged in handling, as the steel die might be; (d) no accuracy of ram descent is needed, as the rubber will not be damaged by the ram allowed to strike hard, and the brake can not be jammed by such striking; and, (e) under ordinary conditions the rubber strips are not difficult of procurement, at a cost not prohibitive. Practically all such bends as "air-bends" can be done in rubber.

In a subsequent text and accompanying drawings we shall discuss and show the advantage of employing rubber in shallow stampings, such as bottom-raising, door-stiffening by cross-wise metal raising, curving of angles, channels and the like, and a number of other operations which can be done

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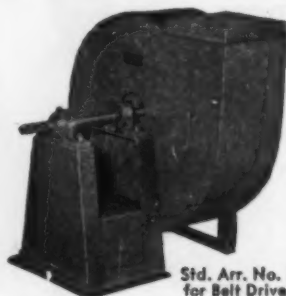
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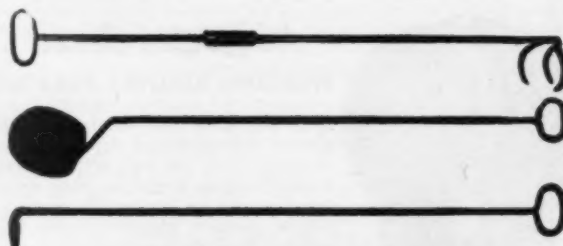
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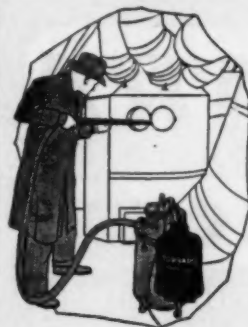
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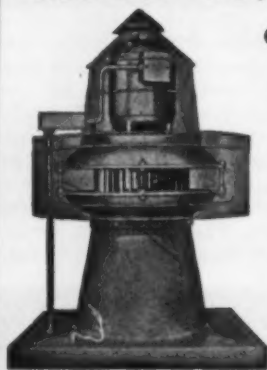
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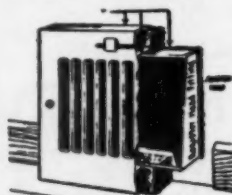
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in a press brake, in combination with rubber pads, rubber forms and rubber linings. This is not intended to say that all, or most, sheet metal shaping work can be performed in rubber. There is sheet metal forming that calls for solid, accurately machined steel dies, same as 90 per cent of stamping and curved forming must be done in either solid steel dies, or in dies operated in a drop hammer. For the fabricator of a specialty which requires a comparatively small number of dies, for either the press or the press brake, the solid steel dies undoubtedly are better, and an investment in such dies will be a wise move. But for experimental sheet metal work, preceding mass production of any specialty, the use of rubber will prove practical and inexpensive. And, in the job shop, which has no quantity production of any kind, and which does only limited shapings, rubber is practical.

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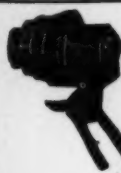


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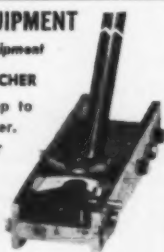
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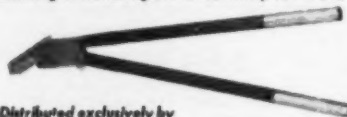
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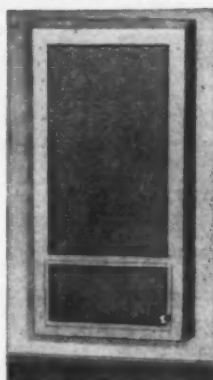
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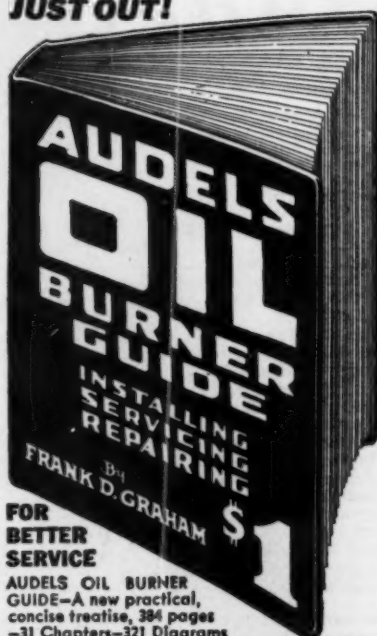
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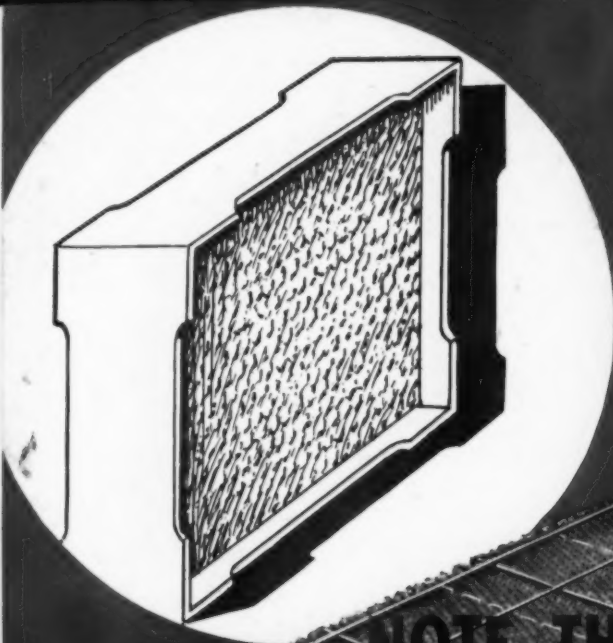
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